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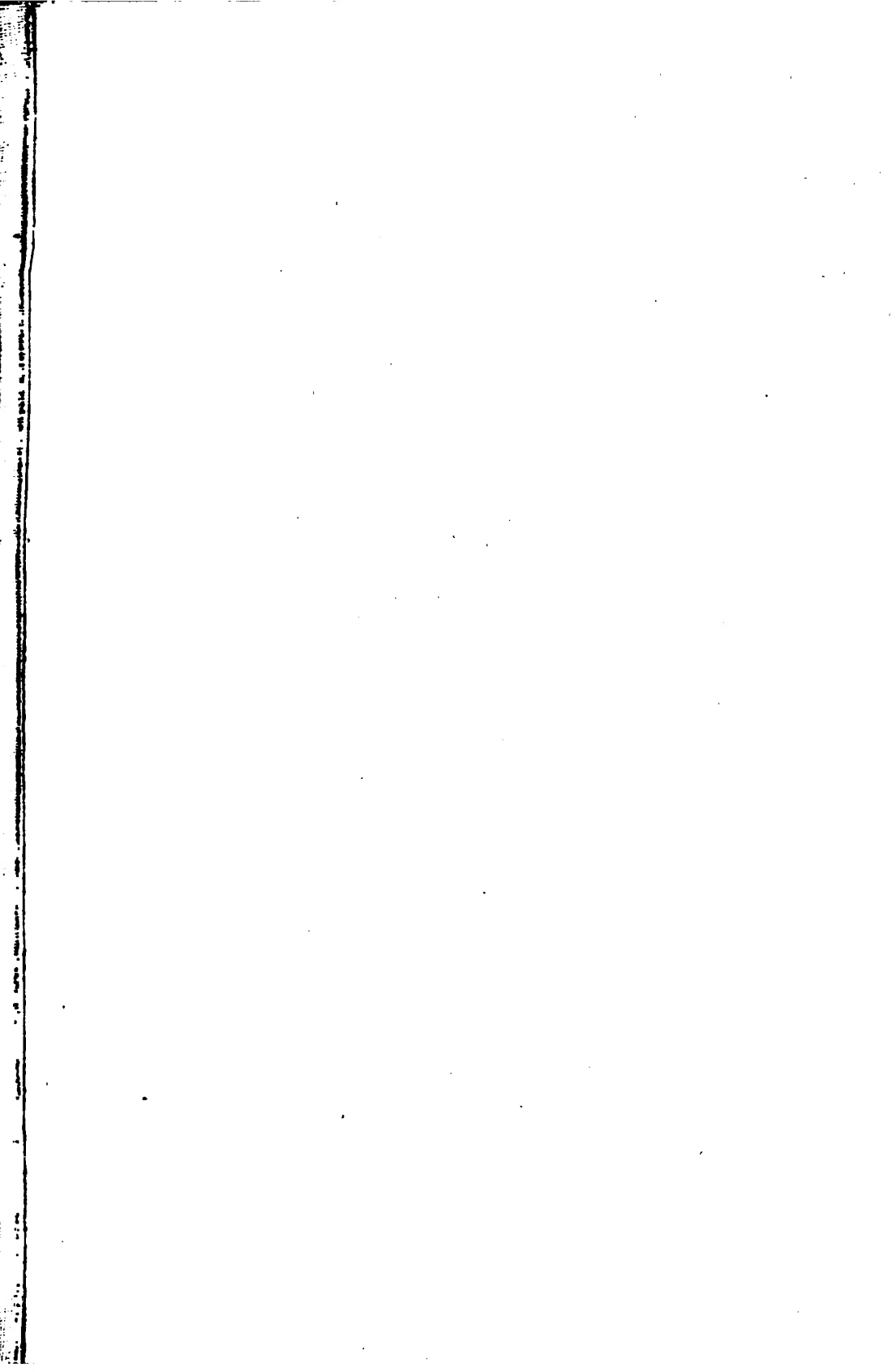
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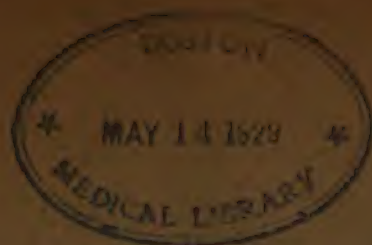
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PROCEEDINGS
of the
American Association of Museums

Vol. I

1907



**PROCEEDINGS
OF THE
AMERICAN ASSOCIATION OF MUSEUMS**

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THE AMERICAN ASSOCIATION OF MUSEUMS, JUNE 4, 1907, ON THE STEPS
OF LECTURE HALL OF SCIENCE CARNEGIE INSTITUTE, PITTSBURGH, PA.

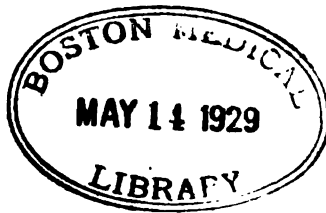
PROCEEDINGS
OF THE
AMERICAN ASSOCIATION OF MUSEUMS

RECORDS OF THE MEETING
HELD AT THE MUSEUM OF THE CARNEGIE INSTITUTE
PITTSBURGH, PENNSYLVANIA

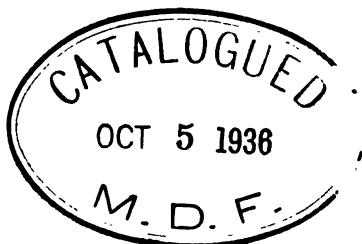
JUNE 4-6, 1907

PITTSBURGH, PA.
1908

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TREASURER,

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Philadelphia Commercial Museums, Philadelphia.

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1906-1908

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J. E. TALMAGE,

Deseret Museum, Salt Lake City.

1906-1907

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Brooklyn Institute of Arts and Sciences, Brooklyn.

WILLIAM H. GOODYEAR,

Brooklyn Institute of Arts and Sciences, Brooklyn.

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P. M. REA,
Charleston Museum, Charleston, S. C.

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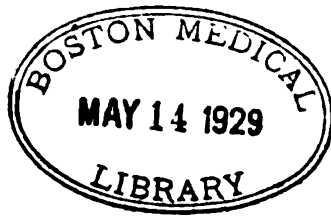
1907-1908

WILLIAM M. R. FRENCH,
GEORGE A. DORSEY,

WILLIAM J. HOLLAND,
P. M. REA.



FIRST MEETING OF THE AMERICAN ASSOCIATION OF MUSEUMS ON STEPS
OF THE MUSEUM OF THE NEW YORK BOTANICAL SOCIETY, MAY 16, 1906



ORGANIZATION
AND
Minutes of the First Meeting
OF THE
American Association of Museums

HELD IN NEW YORK CITY,

May 15-16, 1906.

— — — — —
ORGANIZATION

On December 21, 1905, an informal meeting was held at the National Museum in Washington for the purpose of discussing the advisability of endeavoring to establish an association of the museums of America. As the result of the informal conference the following circular letters were issued to various persons who were supposed to be interested in the movement:

CARNEGIE MUSEUM, PITTSBURGH, Dec. 27, 1905.

At an informal meeting, at which the undersigned were present, it was

(1) *Resolved*, To issue a call for a preliminary meeting in order to organize THE MUSEUMS ASSOCIATION OF AMERICA. It was

(2) *Resolved*, That the courteous invitation of Dr. H. C. Bumpus, of the American Museum of Natural History, Central Park, New York, to meet at that institution on May 15, 1906, at 10 A. M., be accepted. It was

(3) *Resolved*, That Dr. W. J. Holland, the Director of the Carnegie Museum, Pittsburgh, Pa., be appointed a committee to issue an invitation for this meeting, with instructions to address the same to the heads of a number of the leading mu-

seums of America and individuals who are deemed by the undersigned to be likely to take an interest in the formation of such an association. Dr. Holland was also requested to enclose with the invitation, merely as a basis for consideration and discussion, certain memoranda relating to the organization, which are regarded by the undersigned as outlining the thoughts which were in their minds when considering the subject of forming the Association.

In accordance with the foregoing resolutions a hearty invitation is hereby extended to you to meet with us at the American Museum of Natural History, New York City, May 15, 1906, at 10 o'clock A. M.

RICHARD RATHBUN,
(Asst. Sec. Smithsonian Institution, in charge U. S.
National Museum).
H. C. BUMPUS,
(Director, American Museum of Natural History).
W. P. WILSON,
(Director, Philadelphia Museums).
F. A. LUCAS,
(Curator-in-Chief, Brooklyn Institute).
N. L. BRITTON,
(Director, New York Botanical Garden).
F. J. V. SKIFF,
(Director, Field Museum Natural History).
W J MCGEE,
(Director, St. Louis Public Museum).
SAMUEL HENSHAW,
(Curator, Museum of Comparative Zoölogy).
W. J. HOLLAND,
(Director, Carnegie Museum).

CARNEGIE MUSEUM, PITTSBURGH, PA., December 27, 1905.

Dear Sir:—I herewith enclose an invitation from the heads of nine of the museums of America, who met informally on December the 21st, to discuss the propriety of endeavoring to establish THE MUSEUMS ASSOCIATION OF AMERICA. If you can make it possible to attend a convention to be held for this purpose at the American Museum of Natural History in New

York, on May the 15th, 1906, at 10 o'clock, I sincerely trust that you will do so, and come prepared to unite with your friends in the discussion of the necessary preliminary steps, as well as to bring before the gathering any original observations, or papers relating to museums and their administration, which it may be your wish to present.

You will greatly oblige me by signifying on the blanks herewith attached whether your presence at this convention may be expected, and also what are the subjects which you would like to present for consideration and discussion at the meeting.

I am, yours very truly,

W. J. HOLLAND,

Committee.

Invitations were also extended through the columns of *Science* to all who might be interested in the formation of such a society to give in their adhesion to the movement.

MINUTES OF THE FIRST MEETING OF THE AMERICAN ASSOCIATION OF MUSEUMS, HELD IN
NEW YORK CITY, MAY 15-16, 1906

SESSION OF MAY FIFTEENTH

Morning

In response to the calls which had been issued a large number of delegates from the various museums of America met at the Museum of Natural History in New York on May 15th, at 10:30 o'clock. The meeting was called to order by Dr. W. J. Holland, the Director of the Carnegie Museum, Pittsburgh, and upon his motion Dr. Hermon C. Bumpus, the Director of the American Museum of Natural History, was called upon to preside. Dr. Bumpus, having taken the chair, requested Dr. George A. Dorsey of the Field Museum of Natural History to act as temporary secretary. Dr. Bumpus on behalf of the American Museum of Natural History extended a hearty welcome to those who were present.

The following cablegram was read from the President of the Museums Association of Great Britain, Dr. William E. Hoyle:

"THE AMERICAN MUSEUMS ASSOCIATION.

Best wishes for successful inauguration and future progress from
Museums Association.

W. E. HOYLE."

To which Professor E. S. Morse was instructed to prepare and send an appropriate reply.

A congratulatory letter from Professor F. W. Putnam was read, and Dr. W. J. Holland was authorized to send the following message in reply:

"DR. F. W. PUTNAM,

Peabody Museum of Archeology, Cambridge, Mass.:

I am authorized by the American Association of Museums to thank you for your kind letter of congratulation and to express on their behalf the wish that you may be speedily restored to fullness of health and vigor and be able to attend future meetings of the Association, which is honored in recognizing you as one of those who take part in its organization.

W. J. HOLLAND."

The names of those who had replied to the original invitation and who, either by being present or by letter, had signified their adhesion to the movement, were read at the request of the Chair by Dr. W. J. Holland.

Those present were the following:

Charles C. Adams, Ann Arbor, Michigan.

J. A. Allen, Curator, Department of Mammalogy and Ornithology, American Museum of Natural History, New York, N. Y.

F. C. Baker, Curator, Chicago Academy of Sciences, Chicago, Ill.

E. H. Barbour, University of Nebraska, Lincoln, Nebraska.

William Beutenmüller, Curator, Department of Entomology, American Museum of Natural History, New York, N. Y.

Franz Boas, American Museum of Natural History, New York, N. Y.

N. L. Britton, Director of the New York Botanical Garden, Bronx Park, New York, N. Y.

W. A. Bryan, Curator of Ornithology, Bernice Pauahi Bishop Museum, Honolulu, H. I.

Hermon C. Bumpus, Director, American Museum of Natural History, New York, N. Y.

Frank M. Chapman, Associate Curator, Department of Mammalogy and Ornithology, American Museum of Natural History, New York, N. Y.

John M. Clarke, Director, New York State Museum, Albany, New York.

T. L. Comparette, Curator Cabinet of Coins, United State Mint, Philadelphia, Pa.

J. R. Coolidge, Jr., Temporary Director, Museum of Fine Arts, Boston, Mass.

C. B. Cory, Curator, Department of Ornithology, Field Museum of Natural History, Chicago, Ill.

B. E. Dahlgren, Assistant Curator of Invertebrate Zoölogy, American Museum of Natural History, New York, N. Y.

George A. Dorsey, Curator, Department of Anthropology, Field Museum of Natural History, Chicago, Ill.

George Francis Dow, Secretary, The Essex Institute, Salem, Mass.

C. R. Eastman, Museum of Comparative Zoölogy, Cambridge, Mass.

Carl H. Eigenmann, Indiana University, Bloomington, Indiana.

D. G. Elliot, Curator of Zoölogy, Field Museum of Natural History, Chicago, Ill.

O. C. Farrington, Curator of Geology, Field Museum of Natural History, Chicago, Ill.

W. M. R. French, Director of the Art Institute of Chicago, Chicago, Ill.

Miss Annie B. Gallup, Children's Museum, Brooklyn Institute, Brooklyn, N. Y.

J. W. Gidley, Department of Geology, United States National Museum, Washington, D. C.

Benjamin Ives Gilman, Secretary, Museum of Fine Arts, Boston, Mass.

W. H. Goodyear, Curator of Fine Arts, The Museum of the Brooklyn Institute of Arts and Sciences, Brooklyn, N. Y.

L. P. Gratacap, Curator, Department of Mineralogy and Conchology, American Museum of Natural History, New York, N. Y.

- Christopher W. Hall, Professor of Geology and Mineralogy, University of Minnesota, Minneapolis, Minn.
- O. P. Hay, Associate Curator, Department of Vertebrate Paleontology, American Museum of Natural History, New York, N. Y.
- Samuel Henshaw, Curator, Museum of Comparative Zoölogy, Cambridge, Mass.
- Charles H. Hitchcock, Curator, Butterfield Museum, Dartmouth College, Hanover, N. H.
- W. J. Holland, Director, Carnegie Museum, Pittsburgh, Pa.
- Arthur Hollick, Assistant Curator, New York Botanical Garden, New York, N. Y.
- Marshall A. Howe, Assistant Curator, New York Botanical Garden, New York, N. Y.
- Edmund Otis Hovey, Associate Curator, Department of Geology and Invertebrate Paleontology, American Museum of Natural History, New York, N. Y.
- Lawrence W. Jenkins, Curator, Peabody Museum, Salem, Mass.
- Charles W. Johnson, Curator, Boston Society of Natural History, Boston, Mass.
- F. A. Lucas, Curator-in-Chief of the Museum of the Brooklyn Institute of Arts and Sciences, Brooklyn, N. Y.
- F. B. Loomis, Amherst College, Amherst, Mass.
- W. D. Matthew, Associate Curator of Vertebrate Paleontology, American Museum of Natural History, New York, N. Y.
- Charles W. Mead, Assistant, Department of Ethnology, American Museum of Natural History, New York, N. Y.
- Wm. C. Mills, Ohio State Archeological and Historical Society, Columbus, Ohio.
- Roy W. Miner, Assistant Curator, Department of Invertebrate Zoölogy, American Museum of Natural History, New York, N. Y.
- Henry Montgomery, Curator of the New Museum, University of Toronto, Toronto, Canada.
- Edward S. Morse, Director, Peabody Academy of Science, Salem, Mass.
- George Grant MacCurdy, Curator of Anthropology, Yale University Museum, New Haven, Conn.
- W J McGee, Director of the St. Louis Public Museum, St. Louis, Mo.
- Henry F. Nachtrieb, Curator, The Museum, University of Minnesota, Minneapolis, Minn.
- C. C. Nutting, Curator of the Museum, State University of Iowa, Iowa City, Iowa.
- Henry Fairfield Osborn, Curator Vertebrate Paleontology, American Museum of Natural History, New York, N. Y.
- George H. Pepper, Assistant, Department of Ethnology, American Museum of Natural History, New York, N. Y.
- Miss C. M. Perine, Assistant to Director of the Wistar Institute of Anatomy, Philadelphia, Pa.
- P. M. Rea, Director, The Charleston Museum, Charleston, S. C.
- Edward Robinson, Assistant Director Metropolitan Museum of Art, New York, N. Y.

- George H. Sherwood, Curator of Department of Public Instruction, American Museum of Natural History, New York, N. Y.
- J. A. Shafer, Custodian, New York Botanical Garden, New York, N. Y.
- J. K. Small, Curator, Museum and Herbarium of the New York Botanical Garden, New York, N. Y.
- F. J. V. Skiff, Director, Field Museum of Natural History, Chicago, Ill.
- Harlan I. Smith, Assistant Curator of Ethnology, American Museum of Natural History, New York, N. Y.
- Witmer Stone, Curator, Academy of Natural Sciences, Philadelphia, Pa.
- J. E. Talmage, Director, Deseret Museum, Salt Lake City, Utah.
- Ralph W. Tower, Curator, Department of Physiology, American Museum of Natural History, New York, N. Y.
- C. H. Townsend, Director, New York Aquarium, New York, N. Y.
- Henry L. Ward, Director, Milwaukee Public Museum, Milwaukee, Wis.
- Wm. Morton Wheeler, Curator of Invertebrate Zoölogy, American Museum of Natural History, New York, N. Y.
- R. P. Whitfield, Curator of Geology and Invertebrate Paleontology, American Museum of Natural History, New York, N. Y.
- C. P. Wilcomb, late Director, Golden Gate Park Museum, San Francisco, California.
- Charles C. Willoughby, Assistant Curator, Peabody Museum of American Archeology and Ethnology, Cambridge, Mass.
- W. P. Wilson, Director, Philadelphia Museums, Philadelphia, Pa.
- Clark Wissler, Acting Curator, Department of Ethnology, American Museum of Natural History, New York, N. Y.
- A. Woodward, Curator, Department of Maps and Charts, American Museum of Natural History, New York, N. Y.

Those who signified their adhesion by letter were the following:

- H. M. Ami, Geological Survey of Canada, Ottawa, Canada.
- Edwin A. Barber, Curator, The Pennsylvania Museum and School of Industrial Art, Philadelphia, Pa.
- John W. Beatty, Director, Department of Fine Arts, Carnegie Institute, Pittsburgh, Pa.
- W. T. Brigham, Director, Bernice Pauahi Bishop Museum, Honolulu, H. I.
- E. C. Case, State Normal School, Milwaukee, Wis.
- Sir Caspar Purdon Clarke, Director, Metropolitan Museum of Art, New York, N. Y.
- H. F. Cleland, Curator, The Museum, Williams College, Williamstown, Massachusetts.
- G. L. Collie, Acting Curator, Logan Museum, Beloit College, Beloit, Wis.
- George F. Comfort, Director of the Syracuse Museum of Fine Arts, Syracuse, N. Y.
- Bashford Dean, Honorary Curator of Fishes, American Museum of Natural History, New York, N. Y.
- Lewis L. Dyche, Curator, Department of Systematic Zoölogy, University of Kansas, Lawrence, Kansas.

- Rafael Espinosa Escallon, Director, Museo Nacional, Bogota, Colombia.
Free Museum of Science and Art, Philadelphia, Pa.
- J. H. Gest, Director, Art Museum of the Cincinnati Museum Association, Cincinnati, Ohio.
- Milton J. Greenman, Director, Wistar Institute of Anatomy, Philadelphia, Pa.
- Emil August Goeldi, Director, Museo Goeldi, Pará, Brazil.
- G. B. Gordon, Curator of Ethnology, Free Museum of Science and Art, Philadelphia, Pa.
- Miss Delia I. Griffin, Director, Fairbanks Museum of Natural Sciences, St. Johnsbury, Vt.
- Hermann Von Ihering, Director, Museo Paulista, São Paulo, Brazil.
- Junius Henderson, Curator, The Museum, University of Colorado, Boulder, Colorado.
- Wm. T. Hornaday, Director, New York Zoological Garden, Bronx Park, New York, N. Y.
- Halsey C. Ives, Director, Museum of Fine Arts, St. Louis, Missouri.
Institute of Jamaica, Kingston, Jamaica.
- Francis Kermodé, Curator, Provincial Museum, Victoria, British Columbia.
- J. S. Kingsley, Curator, Barnum Museum, Tufts College, College Hill, Mass.
- George F. Kunz, Honorary Curator of Gems, American Museum of Natural History, New York, N. Y.
- Charles M. Kurtz, Director, Albright Art Gallery, Buffalo Academy of Fine Arts, Buffalo, N. Y.
- J. C. K. Laflamme, Director, The Museum, Université Laval, Quebec, Canada.
- George Lefevre, Curator, Zoological Museum, University of Missouri, Columbia, Mo.
- Elizabeth J. Letson, Director, Buffalo Society of Natural History, Buffalo, N. Y.
- Edmund Drummond Libbey, President Toledo Museum of Arts, Toledo, Ohio.
- Josua Lindahl, Director, Museum of Natural History, Cincinnati, Ohio.
- Leverett Mills Loomis, Curator-in-Chief, California Academy of Sciences, San Francisco, California.
- Albert Davis Mead, Professor of Comparative Anatomy, Brown University, Providence, R. I.
- C. Hart Merriam, Chief, Biological Survey, Washington, D. C.
- Charles S. Minot, Professor of Histology and Human Embryology, Harvard Medical School, Boston, Mass.
- Harry C. Peterson, Curator, The Museum, Leland Stanford, Jr., University, Palo Alto, California.
- Frederic W. Putnam, Curator, Peabody Museum of American Archeology and Ethnology, Cambridge, Mass.
- Richard Rathbun, Assistant Secretary, Smithsonian Institution, in charge United States National Museum, Washington, D. C.
- Charles Schuchert, Curator, Yale Museum, New Haven, Conn.
- W. B. Scott, Professor of Geology and Paleontology, University Museum, Princeton, N. J.
- T. Guilford Smith, President, Buffalo Society Natural Sciences, Buffalo, N. Y.
- Wm. Trelease, Director, Missouri Botanical Garden, St. Louis, Mo.

Henry A. Ward, 6020 Division St., Chicago, Ill.

Burt G. Wilder, Professor of Neurology, Physiology, and Vertebrate Zoölogy,

• Cornell University, McGraw Hall, Ithaca, N. Y.

Upon motion of Dr. W. J. Holland the Secretary was instructed to convey to Mr. William T. Hornaday, the Director of the New York Zoölogical Park, who was prevented by dangerous illness from being present, the assurance of the sympathy of the meeting and best wishes for his speedy recovery.

A Committee upon Organization was appointed, consisting of Dr. W. J. Holland, Carnegie Museum; Mr. W. M. R. French, Art Institute of Chicago; Professor P. M. Rea, Charleston Museum, South Carolina; Professor James E. Talmage, Deseret Museum, Salt Lake City, and Dr. W. P. Wilson, Philadelphia Commercial Museums.

The reading of papers was then made the order of the day. Dr. W J McGee presented the first paper: "Is It Desirable to Introduce Departments of Geography into Educational Museums?" The paper was discussed by Messrs. Farrington, Hovey, and Montgomery. Dr. Benjamin Ives Gilman then presented two papers, (1) "Two Kinds of Museums," (2) "Aims and Principles of the Construction and Management of Museums of Fine Art." The reading of these papers was followed by remarks by Messrs. Good-year, Lucas, and others. The discussion was interrupted by a motion to take a recess in order to accept the invitation extended by the American Museum of Natural History to partake of luncheon.

Afternoon

The meeting reconvened at 2:30 P. M. Professor E. S. Morse stated that he desired to add some remarks to those already made in reference to the two papers presented by Dr. Gilman, but owing to Dr. Gilman's absence further discussion of these papers was postponed.

Professor Henry Montgomery presented a paper on "Museums and Museum Work in the Public Schools." The reading of the paper was followed by a discussion, in which Messrs. Holland, Wilson, Sherwood, French, Goodyear, and Ward participated.

The reading of papers was by common consent interrupted in order to give the Committee on Organization an opportunity to be heard. The Committee presented a rough draft of the Constitution,

with the request that as the articles were read in succession suggestions should be made from the floor. This was done, and the Committee then retired in order to revise the draft in the light of the various suggestions which had been made.

The reading of papers was resumed. Professor P. M. Rea read a paper upon "A Method of Recording Bird Records," which was illustrated, and elicited commendatory remarks from a number of members. The next paper was read by Mr. F. C. Baker. His subject was "The Educational Arrangement of Natural History Museums." A brief discussion followed in which a number of members participated.

Dr. Britton then invited those present to hold their next session at the Museum of the New York Botanical Society, Bronx Park. The invitation was accepted, and the meeting adjourned at 5 P. M. to reconvene on the morrow at 10 A. M. at the Museum of the New York Botanical Society.

SESSION OF MAY SIXTEENTH

Morning

The meeting was called to order at 10 A. M., in the Museum of the New York Botanical Society, Bronx Park, Dr. Hermon C. Bumpus in the chair.

The Committee on Organization submitted a report, recommending the adoption of the draft of a constitution which they submitted.

The report of the Committee was upon motion adopted, with the understanding that this Constitution shall be regarded as preliminary, subject to revision at the next annual meeting. The Committee was discharged.

The Association then proceeded to the nomination and election of officers by ballot.

Dr. Hermon C. Bumpus was elected President.

The Association then took a recess to partake of a luncheon provided by the New York Botanical Society.

Afternoon

The Association reconvened in the Museum of the New York Botanical Society at 3:30 P. M. The following officers were elected:

First Vice-President,

Mr. William M. R. French, Art Institute of Chicago.

Second Vice-President,

Dr. W. J. Holland, Carnegie Museum.

Secretary,

Dr. George A. Dorsey, Field Museum of Natural History,
Chicago.

Treasurer,

Dr. W. P. Wilson, Philadelphia Commercial Museums.

Councillors,

To serve for three years:

Dr. Richard Rathbun, United States National Museum.

Professor E. S. Morse, Peabody Academy of Science, Salem,
Massachusetts.

To serve for two years:

Dr. N. L. Britton, New York Botanical Garden, New
York, N. Y.

Professor J. E. Talmage, Deseret Museum, Salt Lake City,
Utah.

To serve for one year:

Mr. F. A. Lucas and Dr. William H. Goodyear, both of
the Brooklyn Institute of Arts and Sciences.

Upon motion of Dr. Skiff the thanks of the Association were
tendered to Dr. Holland for the active interest which he had
shown in bringing about the formation of the Association.

A paper was read by Dr. C. H. Eigenmann on "Some Problems
to be Solved by Museums, as Illustrated by the Distribution of South
American Fishes." This paper was discussed by Messrs. E. S.
Morse, F. J. V. Skiff, and others. A paper by Dr. Milton J. Green-
man, upon "Metallic Cases in Museums," was read by Miss C. M.
Perine, who also presented a number of sectional models showing
the salient features of the construction of the cases which are in
use in the Wistar Institute of Anatomy in Philadelphia, Pa. The
paper elicited considerable discussion, which was participated in by
Messrs. Montgomery, Morse, Skiff, Holland, and Dorsey.

Inasmuch as the hour was growing late and it was felt hardly
expedient to continue the sessions for another day, it was resolved
that any others who might wish to present papers should have
permission to present them by title, with the understanding that the

titles would be incorporated in the published reports of the meeting. The following papers were then presented:

By Mr. T. L. Comparette, Curator of the Numismatic Collection, United States Mint, Philadelphia, Pa., upon "Coins and Medals; Their Place in a Public Museum."

By Mr. C. C. Adams, Curator, the Museum, University of Michigan, Ann Arbor, Michigan, upon "Some of the Advantages of an Ecological Arrangement for a Natural History Museum."

By Prof. C. W. Hall, Minneapolis, Minnesota, upon "The Preservation of the Type in Museum Development."

By Dr. Wm. T. Brigham, Director, the Bernice Pauahi Bishop Museum, Honolulu, H. I., upon (1) "Shall We Explore the Pacific Now?" and (2) "Museum Collections as viewed by Chinese, Japanese, Portuguese, and Hawaiians in Honolulu."

By Prof. E. H. Barbour, University of Nebraska, Lincoln, Nebraska, upon (1) "The Nebraska State Museum," (2) "The Private Museums of Nebraska."

By Dr. Josua Lindahl, Director of the Museum of Natural History, Cincinnati, Ohio, upon "Suggestions in Regard to Descriptive Labels in Museums."

By Dr. W. P. Wilson, Director the Philadelphia Commercial Museums, Philadelphia, Pa., upon "The History, Organization, Development, and Work of Commercial Museums."

By Mr. F. A. Lucas, Curator-in-Chief, The Museum of the Brooklyn Institute of Arts and Sciences, upon "The Origin and Evolution of Museums."

By Mr. Henry L. Ward, Director of the Milwaukee Public Museum, Milwaukee, Wisconsin, upon "The Exhibition of Large Groups in Museums."

Mr. F. J. V. Skiff presented the following resolutions, which upon motion were referred to the Council for action:

"Resolved, That it is the sense of this Association that the American Association of Museums should be allied with the National Education Association."

"Resolved, That a Special Committee of three be appointed to confer in reference to the foregoing suggestion with the authorities of the National Education Association, and report at their convenience to the Association or to the Council."

Upon motion of Dr. W. J. Holland it was

"Resolved, That the Council be made a Standing Committee upon the preliminary draft of the Constitution, and that all persons desiring to make suggestions in reference to the Constitution be requested to submit the same to the Council."

Mr. O. C. Farrington submitted the following resolution, which was upon motion referred to the Council:

"Whereas, Museums are institutions devoted to public welfare and to the discovery and dissemination of knowledge, and their curators devote themselves to the cause of popular education, therefore the American Association of Museums hereby

Memorializes the Trustees of the Carnegie Foundation for the Promotion of Teaching, requesting the admission of the curators of American museums to the privileges of this foundation under such regulations as shall hereafter be agreed upon by a committee of this Association and the Trustees of the Foundation."

Mr. George A. Dorsey submitted the following resolution, which upon motion was referred to the Council:

"Resolved, That a Special Committee of three be appointed by the Chair to consult with the proper authorities for the purpose of endeavoring to secure fourth-class postal rates upon the publications of museums and other educational institutions, in cases in which such publications are distributed gratuitously, but cannot be issued at stated intervals of time."

Mr. W. A. Bryan presented the following resolution, which was also referred to the Council:

"Resolved, That it is the sense of this meeting that the Council of the American Association of Museums be instructed to take under advisement the matter of preparing some suitable form of publication which shall be the official organ of this Association, and that it is hereby empowered to appoint the Editor and Associate Editor, and to make all necessary arrangements for the publication of such Museum Journal as they may deem necessary."

Mr. F. C. Baker presented the following resolutions, which were also referred to the Council:

"Resolved, That the American Association of Museums extends its heartfelt sympathy to the California Academy of Sciences in the loss of its Museum building and collections, and

"Resolved, That each museum here represented pledges itself to aid the California Academy of Sciences in rebuilding its collections, in every way within its power."

Upon motion the thanks of the Association were by a rising vote tendered to Dr. Hermon C. Bumpus and the authorities of the American Museum of Natural History and to Dr. N. L. Britton and the authorities of the New York Botanical Garden for the generous hospitality shown to the Association during its sessions.

Dr. Holland presented an invitation from the Trustees of the Carnegie Museum to hold the next meeting of the Association in Pittsburgh. This invitation was accepted with thanks, and it was resolved that the Council in fixing the time for the next general meeting should select a date not earlier than the first week in May and not later than the last week in June. Adjourned.

Attest:

GEO. A. DORSEY,

Secretary.

CONSTITUTION OF THE AMERICAN ASSOCIATION
OF MUSEUMS

ARTICLE I

NAME

The name of this Association shall be "The American Association of Museums."

ARTICLE II

OBJECT

The object of this Association shall be to promote the welfare of Museums, to increase and diffuse knowledge of all matters relating to them, and to encourage helpful relations among Museums and those interested in them.

ARTICLE III

MEMBERSHIP

All Museums officially represented at the first meeting of this Association, held at the American Museum of Natural History in New York, on May 15, 1906, all persons taking part in the organization of this Association, or who on the above date, or prior thereto, have by letter signified their wish to become members of the Association, shall become Charter Members on payment before the next annual meeting of the Association of the fees hereinafter provided for.

The Members of the Association shall be Active, Associate, Sustaining, and Honorary.

Persons actively engaged in the work of Museums may become Active Members on the payment of two dollars per annum, and may become Active Members for Life upon payment of thirty dollars at any one time.

Persons not actively engaged in the work of Museums, contributing five dollars per annum, may become Associate Members.

Each Museum paying not less than ten dollars a year shall be a Sustaining Member of the Association, and through its chief executive officer, or a properly accredited representative, shall be entitled to cast a vote on all matters coming before the Association.

Persons distinguished for eminent services, either to the cause of Museums or to this Association, may become Honorary Members. The number of Honorary Members shall be limited to fifteen. When ten Honorary Members have been elected then thereafter not more than two such members may be elected annually.

Active and Sustaining Members only shall have a right to vote, and Active Members only may hold office.

Any Museum or person proposed in writing for Active, Associate, or Sustaining Membership by a Member of the Association, and approved by the Council, upon the payment of the proper fee shall become a Member of the Association.

Any person contributing five hundred dollars or more at any one time shall become a Patron of the Association.

ARTICLE IV

OFFICERS

The officers of the Association shall be a President, two Vice-Presidents, a Secretary, and a Treasurer, and six other persons designated as Councillors, and these eleven shall constitute the Council. The President and two Councillors chosen by the Association shall retire annually, and for one year shall be ineligible for re-election to the same office.

ARTICLE V

COUNCIL

The general control of the affairs of the Association, except as otherwise herein provided, shall be vested in the Council.

ARTICLE VI

ELECTION OF OFFICERS

Officers shall be elected by ballot at the annual meeting.

The Council shall have power to fill any vacancies which may occur in its membership between annual meetings.

ARTICLE VII

MEETINGS

A general meeting shall be held in each calendar year. Special meetings may be appointed by the Association or called by the Council. The time and place of the annual meeting shall be determined by the Association. In order to diffuse a knowledge of Museums and their work, the Association shall meet in a different city or town each succeeding year, unless otherwise determined by the Association.

At the annual meeting papers may be read, matters relating to Museums discussed, and any business relating to the affairs of the Association shall be transacted.

Special meetings may be called by the Council in emergencies, and only matters stated in the call shall be considered at such special meetings.

THE AMERICAN ASSOCIATION OF MUSEUMS¹

LIFE MEMBERS

The asterisk (*) denotes an original or "Charter Member," who has qualified as such by paying his dues during the first fiscal year of the life of the Association.

Crook, A. R., Curator, Museum of Natural History, State of Illinois, Springfield, Illinois.

*Hall, Robert C., Owner, Hall Museum of Anthropology, 240 Fourth Avenue, Pittsburgh, Pa.

*Henshaw, Samuel, Curator, Museum of Comparative Zoölogy, Harvard University, Cambridge, Mass.

*Holland, W. J., Director, Carnegie Institute, Department of the Museum, Pittsburgh, Pa.

*Minot, Charles S., Harvard Medical School, Boston, Mass.

*Talmage, James E., Director, The Deseret Museum, Salt Lake City, Utah.

ACTIVE MEMBERS.

*Adams, Charles C., Director, Natural History Museum, Cincinnati Society of Natural History, Cincinnati, Ohio.²

*Akeley, C. E., Taxidermist-in-Chief, Field Museum of Natural History, Chicago, Ill.

*Allen, J. A., Curator of Mammals and Ornithology, American Museum of Natural History, New York, N. Y.

*Ami, Henry M., Geological Survey of Canada, Ottawa, Canada.

Atkinson, D. A., Honorary Custodian of Reptiles and Amphibians, Carnegie Museum, Pittsburgh, Pa.

*Baker, Frank C., Curator, The Chicago Academy of Sciences, Lincoln Park, Chicago, Ill.

*Barber, Edwin Atlee, Curator, Pennsylvania Museum and School of Industrial Art, Memorial Hall, Fairmount Park, Philadelphia, Pa.

*Barbour, Edwin Hinckley, Curator of the State Museum and State Geologist of Nebraska, Lincoln, Neb.

*Beckwith, Paul Edmond, Assistant Curator, Division of History, U. S. National Museum, Washington, D. C.

Beatty, John W., Director, Carnegie Institute, Department of Fine Arts, Pittsburgh, Pa.

*Bennett, Miss B., Assistant to the Director, The Art Institute of Chicago, Chicago, Ill.

¹ The list published has been furnished by the Treasurer, Dr. W. P. Wilson, and is brought down to the end of October, 1907. It is founded upon the records of the Treasurer's office. The Treasurer kindly requests those who may detect errors of name or address to inform him, that they may be corrected in future publications.

² Present address: University of Chicago, Chicago, Illinois.

- *Berg, George L., Director, Washington State Art Association, Seattle, Washington.
- Beutenmüller, William, Curator, Department of Entomology, American Museum of Natural History, New York, N. Y.
- Bibbins, Arthur Barnweld, Director of the Museum, Woman's College, Baltimore, Md.
- *Brigham, William T., Director, Bernice Pauahi Bishop Museum, Honolulu, H. I.
- *Britton, N. L., Director-in-Chief, New York Botanical Garden, Bronx Park, New York, N. Y.
- Brown, Arthur Erwin, Curator, Academy of Natural Sciences, Director, Zoological Gardens, Philadelphia, Pa.
- *Bryan, William Alanson, Curator Ornithology, Bernice Pauahi Bishop Museum, Honolulu, H. I.
- *Bumpus, Herman C., Director, American Museum of Natural History, New York, N. Y.
- *Burchard, Edward L., Museum Organizer, Freeport, Ill.
- *Clarke, Sir Caspar Purdon, Director, Metropolitan Museum of Art, New York, N. Y.
- Coggeshall, Arthur S., Preparator-in-Chief, Section of Paleontology, Carnegie Museum, Pittsburgh, Pa.
- *Collie, George L., Curator of the Logan Museum, Beloit College, Beloit, Wisconsin.
- Comfort, George F., Director, Syracuse Museum of Fine Arts, Syracuse, N. Y.
- *Comparette, T. Louis, Curator, Numismatic Collection, U. S. Mint, Philadelphia, Pa.
- Cory, C. B., Curator of Zoölogy, Field Museum of Natural History, Chicago, Ill.
- Dahlgren, B. E., Assistant Curator Invertebrate Zoölogy, American Museum of Natural History, New York, N. Y.
- *Dean, Bashford, Curator Fossil Fishes, American Museum of Natural History, Curator Arms and Armor, Metropolitan Museum, New York, N. Y.
- *Dorsey, George A., Curator of Anthropology, Field Museum of Natural History, Chicago, Ill.
- Douglass, Earl, Assistant in Field and Laboratory Research, Section of Paleontology, Carnegie Museum, Pittsburgh, Pa.
- *Dow, George Francis, Secretary and Curator of the Museum, Essex Institute, Salem, Mass.
- *Dyche, L. L., Curator of Birds and Mammals, State University, Lawrence, Kansas.
- *Eastman, Charles R., Curator of Vertebrate Paleontology, Museum of Comparative Zoölogy, Harvard University, Cambridge, Mass.
- Failing, Henrietta H., Curator, Portland Art Association Museum of Art, Fifth and Taylor Sts., Portland, Oregon.
- *Farrington, Oliver C., Curator of Geology, Field Museum of Natural History, Chicago, Ill.
- Foulke, J. B., Administrative Assistant, American Museum of Natural History, New York, N. Y.

- Fox, William Henry, Director, John Herron Art Institute, Indianapolis, Ind.
- *French, William M. R., Director, The Art Institute of Chicago, Chicago, Ill.
- *Gallup, Anna Billings, Curator, The Children's Museum, Brooklyn Institute of Arts and Sciences, Brooklyn, N. Y.
- *Gest, J. H., Director, The Cincinnati Museum Association, Cincinnati, Ohio.
- *Gilman, Benjamin Ives, Secretary, Museum of Fine Arts, Boston, Mass.
- Glenk, Robert, Secretary, Louisiana State Museum, 730 Carondelet St., New Orleans, La.
- Glenn, L. C., Vanderbilt University Museum, Nashville, Tenn.
- Goodale, George Lincoln, in Charge Harvard Botanical Museum, Harvard University, Cambridge, Mass.
- *Goodyear, William H., Curator of Fine Arts, Brooklyn Institute of Arts and Sciences, Brooklyn, N. Y.
- *Gordon, G. B., Curator, Section of Ethnology, Free Museum of Science and Art, 33rd and Spruce Sts., Philadelphia, Pa.
- *Greenman, Milton J., Director, The Wistar Institute of Anatomy, 36th and Woodland Avenue, Philadelphia, Pa.
- *Griffin, Miss Delia Isabel, Director, The Fairbanks Museum of Science, St. Johnsbury, Vermont.
- *Griffith, A. H., Director, Detroit Museum of Art, Detroit, Mich.
- *Hall, Christopher W., Curator, Geological Museum, University of Minnesota, Minneapolis, Minn.
- Hartman, C. V., Curator of Archeology and Ethnology, Carnegie Museum, Pittsburgh, Pa.
- Hastings, George T., Assistant Curator, Philadelphia Museums, Philadelphia, Pa.
- *Henderson, Junius, Curator of Museum, University of Colorado, Boulder, Colorado.
- *Hitchcock, Charles H., Curator Butterfield Museum, Dartmouth College, Hanover, New Hampshire.
- *Hollick, Arthur, Curator, Department of Fossil Botany, New York Botanical Garden, New York, N. Y.
- *Hooper, Franklin W., Director, The Brooklyn Institute of Arts and Sciences, Brooklyn, N. Y.
- *Hopkins, Anderson H., Librarian of the Carnegie Library of Pittsburgh, Pa.
- *Hornaday, William T., Director and General Curator of the New York Zoological Park, New York, N. Y.
- *Houston, S. F., President Department of Archeology, University of Pennsylvania, Philadelphia, Pa.
- *Hovey, Edmund Otis, Associate Curator, Department of Geology, American Museum of Natural History, New York, N. Y.
- Howe, Marshall A., Curator of the Museum, New York Botanical Garden, Bronx Park, New York, N. Y.
- Hyett, William James, Assistant in Department of Fine Arts, Carnegie Institute, Pittsburgh, Pa.
- *Jenkins, L. W., Curator of Ethnology, Peabody Museum, Salem, Mass.

- Jennings, Otto E., Assistant Curator of Botany, Carnegie Museum, Pittsburgh, Pa.
- *Johnson, Charles W., Curator, Boston Society of Natural History, Boston, Mass.
- Kahl, Paul Hugo Isidor, Custodian of Entomology, Carnegie Museum, Pittsburgh, Pa.
- Katzenberger, George A., Curator, Museum of Carnegie Library, Greenville, O.
- Kent, Henry W., Assistant Secretary, Metropolitan Museum of Art, New York, N. Y.
- *Kermode, Francis, Curator, Provincial Museum, Victoria, British Columbia.
- *Kunz, George F., Honorary Curator of Gems, American Museum of Natural History, care Tiffany & Co., Fifth Avenue, New York, N. Y.
- *Kurtz, Charles M., Director, Buffalo Academy of Fine Arts, Albright Art Gallery, Buffalo, N. Y.
- *Lamb, Daniel Smith, Pathologist, Army Medical Museum, Washington, D. C.
- *Letson, Miss Elizabeth J., Director of Museum, Buffalo Society of Natural Sciences, Buffalo, N. Y.
- *Lindahl, Josua, Late Director of the Museum of the Cincinnati Society of Natural History, Station E, Cincinnati, O.
- Loomis, Leverett Mills, Director of the Museum, California Academy of Sciences, San Francisco, California.
- *Lucas, Frederick A., Curator-in-Chief, Museum of Brooklyn Institute of Arts and Sciences, Brooklyn, N. Y.
- *MacCurdy, George Grant, Curator, Section of Anthropology, Yale University Museum, New Haven, Conn.
- Mason, Otis T., Curator Ethnology, U. S. National Museum, Washington, D. C.
- *McGee, W J, Director St. Louis Public Museum, St. Louis, Missouri.
- *McGuire, F. B., Director, The Corcoran Gallery of Art, Washington, D. C.
- Mead, Albert D., Professor of Comparative Anatomy, Brown University, Providence, Rhode Island.
- *Mellor, Charles C., Chairman of the Committee on the Museum, Carnegie Institute, Pittsburgh, Pa.
- *Mills, William C., Curator and Librarian, Page Hall, Ohio State University, Columbus, Ohio.
- *Miner, Roy W., Assistant Curator of Invertebrate Zoölogy, American Museum of Natural History, New York, N. Y.
- *Montgomery, Henry, Curator of Museum, University of Toronto, Toronto, Ontario.
- Morris, E. L., Brooklyn Institute of Arts and Sciences, Brooklyn, N. Y.
- *Morse, Edward S., Director, Peabody Museum, Salem, Mass.
- *Morse, S. R., Curator, New Jersey State Museum, Trenton, New Jersey.
- *Nachtrieb, Henry F., Curator Zoölogical Museum, University of Minnesota, Minneapolis, Minn.
- *Nutting, Charles C., Curator, Museum of Natural History, State University of Iowa, Iowa City, Iowa.
- Ortmann, Arnold E., Curator of Invertebrate Zoölogy, Carnegie Museum, Pittsburgh, Pa.

- Perine, Miss Clara N., Assistant to the Director, The Wistar Institute of Anatomy, Philadelphia, Pa.
- *Peterson, Harry C., Curator, Leland Stanford, Jr., Museum, Palo Alto, Calif.
- Peterson, O. A., Preparator of Mammals, Section of Paleontology, Carnegie Museum, Pittsburgh, Pa.
- Pflaum, Magnus, Custodian, American Microscopical Society, Pittsburgh, Pa.
- Prentice, Sydney, Artist and Illustrator, Carnegie Museum, Pittsburgh, Pa.
- Putnam, Edward K., Acting Director, Academy of Sciences, Davenport, Iowa.
- *Putnam, Frederic W., Curator, Peabody Museum, Harvard University, and Director Anthropological Museum, University of California. Address, Cambridge, Mass.
- *Rathbun, Richard, Assistant Secretary Smithsonian Institution, in charge U. S. National Museum, Washington, D. C.
- *Rathman, C. G., Director Educational Museums, Ninth and Locust Sts., St. Louis, Missouri.
- *Raymond, Percy E., Assistant Curator Invertebrate Paleontology, Carnegie Museum, Pittsburgh, Pa.
- *Rea, Paul M., Director, The Charleston Museum, Charleston, South Carolina.
- Robinson, Edward, Assistant Director, Metropolitan Museum of Art, New York, N. Y.
- *Rothrock, Boyd P., Curator Pennsylvania State Museum, Harrisburg, Pa.
- Santens, Remi H., Taxidermic Preparator, Carnegie Museum, Pittsburgh, Pa.
- Schoff, Wilfred H., Secretary, The Philadelphia Museums, Philadelphia, Pa.
- *Schuchert, Charles, Curator, Department of Geology, Yale University Museum, New Haven, Conn.
- Shafer, John A., Custodian of the Museums, New York Botanical Gardens, Bronx Park, New York, N. Y.
- *Sherwood, George H., Assistant Secretary and Treasurer, American Museum of Natural History, New York, N. Y.
- *Skiff, Frederick J. V., Director, Field Museum of Natural History, Chicago, Ill.
- Small, John K., Head Curator of the Museums and Herbarium, New York Botanical Garden, Bedford Park, New York, N. Y.
- *Smith, T. Guildford, President Buffalo Society of Natural Sciences, Buffalo, N. Y.
- Stewart, Douglas, Assistant to the Director, Carnegie Museum, Pittsburgh, Pa.
- *Stone, Witmer, Assistant Curator, Academy of Natural Sciences, Logan Square, Philadelphia, Pa.
- Stotsenburg, J. McPherson, Curator, Wistar Institute of Anatomy, Philadelphia, Pa.
- Toothaker, Charles R., Curator, The Philadelphia Museums, Philadelphia, Pa.
- *Tower, Ralph W., Curator of Physiology, American Museum of Natural History, New York, N. Y.
- *Townsend, Charles H., Director, New York Aquarium, Battery Park, New York, N. Y.
- Townsend, Louis H., Osteologist, Carnegie Museum, Pittsburgh, Pa.
- *Ward, Henry L., Director, Public Museum of the City of Milwaukee, Milwaukee, Wisconsin.

- Webster, Frederic S., Taxidermic Preparator, Carnegie Museum, Pittsburgh, Pa.
 *Wilcomb, C. P., Curator Hall Museum of Anthropology, Aspinwall, Pa.
 *Wilder, Burt Green, Curator of the Museum of Vertebrates, Cornell University, Ithaca, N. Y.
 *Willoughby, Charles C., Assistant Curator, Peabody Museum, Cambridge, Mass.
 *Wilson, W. P., Director, The Philadelphia Museums, 34th St., below Spruce, Philadelphia, Pa.
 *Wissler, Clark, Curator of Ethnology, American Museum of Natural History, New York, N. Y.
 Worth, William A., Director Educational Museum, 500 Park Avenue, New York, N. Y.
 Zeller, August, Assistant, Department of Fine Arts, Carnegie Institute, Pittsburgh, Pa.
 Zierden, Miss Alicia M., Curator, Division of Education, Pennsylvania State Museum, Harrisburg, Pa.

SUSTAINING MEMBERS

- *American Museum of Natural History, 77th St. and Central Park, West, New York, N. Y.
 *The Art Institute of Chicago, Chicago, Ill.
 *Museum of Fine Arts, Boston, Mass.
 *Brooklyn Institute of Arts and Sciences, Eastern Parkway, Brooklyn, N. Y.
 *Carnegie Museum, Department of The Carnegie Institute, Pittsburgh, Pa.
 *The Charleston Museum, Charleston, South Carolina.
 *The Chicago Academy of Sciences, Lincoln Park, Chicago, Ill.
 Cincinnati Museum Association, Cincinnati, Ohio.
 *The Corcoran Gallery of Art, Washington, D. C.
 *The Deseret Museum, Salt Lake City, Utah.
 *The Fairbanks Museum of Natural Science, St. Johnsbury, Vermont.
 *The Field Museum of Natural Science, Chicago, Ill.
 *Free Museum of Science and Art, Department of Archeology, University of Pennsylvania, Philadelphia, Pa.
 *John Herron Art Institute, Indianapolis, Ind.
 *Metropolitan Museum of Art, New York, N. Y.
 Museo Nacional de Bogota, Bogota, Colombia.
 *New York Botanical Garden, Bronx Park, New York, N. Y.
 *New York State Museum, Albany, N. Y.
 Peabody Museum, Salem, Mass.
 *Pennsylvania Museum and School of Industrial Art, Memorial Hall, Fairmount Park, Philadelphia, Pa.
 The Philadelphia Museums, 34th St., below Spruce, Philadelphia, Pa.
 *Public Museum of the City of Milwaukee, Milwaukee, Wisconsin.
 Syracuse Museum of Fine Arts, Syracuse, N. Y.
 University of Nebraska, Lincoln, Nebraska.
 *Washington State Art Association, Seattle, Washington.
 *Williams College, Williamstown, Massachusetts.

REPORT OF THE TREASURER OF THE AMERICAN
ASSOCIATION OF MUSEUMS, PRESENTED AT
THE ANNUAL MEETING, PITTSBURGH,
JUNE 4-6, 1907

RECEIPTS.

| | |
|--|----------|
| Active Membership fees for year ending May 15, 1907..... | \$136.00 |
| Active Membership fees for year ending May, 15 1908..... | 86.00 |
| Sustaining Memberships, year ending May 15, 1907..... | 180.00 |
| Sustaining Memberships, year ending May 15, 1908..... | 70.00 |
| Active Life Memberships..... | 120.00 |
| Total | 592.00 |

EXPENDITURES.

| | | |
|---|--------|----------|
| Jan. 10, To Printing 150 receipt blanks..... | \$1.50 | |
| To Printing 400 circulars..... | 3.00 | \$4.50 |
| Jan. 26, To 500 envelopes and 500 letterheads..... | 3.00 | |
| To Postage stamps and telegram (Treasurer)..... | 8.25 | |
| May 8, To W. J. Holland, Director Carnegie Museum (to issuing circulars, calling meeting in New York, 1906 and Postage)..... | 21.25 | |
| May 8, To W. J. Holland (to bill of Murdoch, Kerr & Co. for printing 1,000 copies Organization and Minutes of First Meeting, May 15 and 16, New York..... | 55.75 | |
| To bill J. C. Bragdon, half tone cut for pamphlet..... | 3.50 | |
| Postage on 200 copies..... | 4.00 | |
| Total | 100.25 | |
| Balance in Treasury, June 4..... | | \$491.75 |

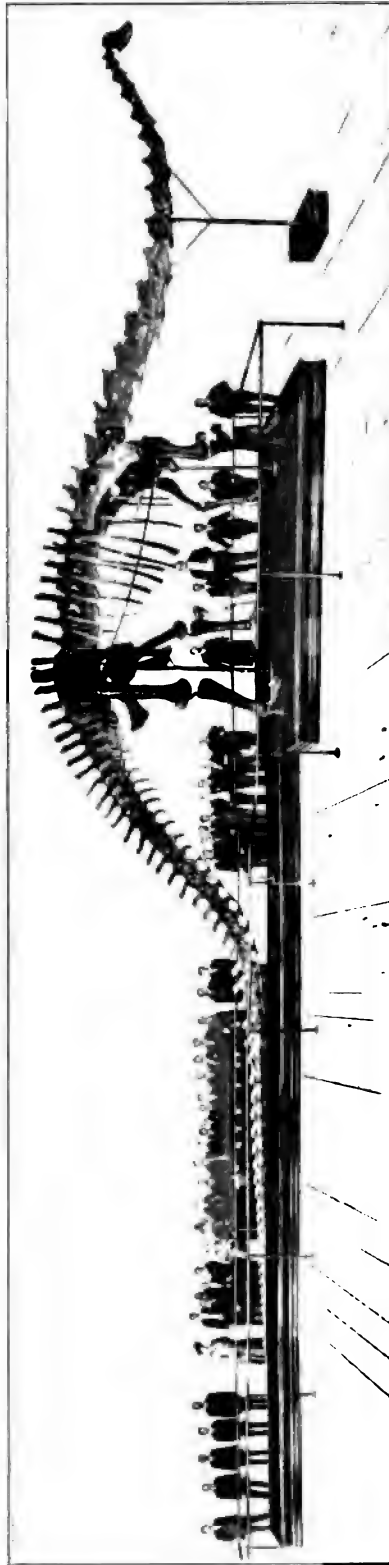
SUMMARY.

| | |
|--|----------|
| Total receipts to date (June 4, 1907)..... | \$592.00 |
| Expenditures to date (June 4, 1907)..... | 100.25 |
| Balance in Treasury..... | \$491.75 |
| June 6, Expenditures and vouchers handed in by Dr. Dorsey..... | 19.05 |
| Final balance..... | \$472.70 |

W. P. WILSON,
Treasurer.

Examined and found correct:

O. C. Farrington,
T. L. Comparette,
Henry L. Ward,
Auditing Committee.



MEMBERS OF THE AMERICAN ASSOCIATION OF MUSEUMS ASSEMBLED ABOUT THE SKELETON OF DIPLODOCUS CARNEGIEI IN THE CARNEGIE MUSEUM, JUNE 5, 1907

PROCEEDINGS
OF THE
Second Annual Meeting
OF THE
American Association of Museums

HELD AT
The Carnegie Institute, Pittsburgh, Pa

June 4-6, 1907

SESSION OF TUESDAY, JUNE 4

Morning

The Association came to order in the Lecture Hall of Science in the Carnegie Museum at 10 A. M., President Hermon C. Bumpus in the chair.

Dr. W. J. Holland, Director of the Carnegie Museum, said: "Mr. President, on behalf of the Local Committee of Arrangements I wish to inform you that we expected to have his honor, Mr. George W. Guthrie, the Mayor of the City of Pittsburgh, with us to welcome the Association this morning. The pressure of important engagements has prevented his presence, but he has kindly requested Mr. James Rodgers McCreery, a Pittsburgher 'to the manor born,' one of the leading members of the bar of this city, to represent him, and I now have the honor of introducing Mr. McCreery to you."

Mr. McCreery.—"Mr. President, Ladies and Gentlemen of the American Association of Museums; after the flattering introduction given me by Dr. Holland it would hardly become me to speak, were it not for the fact that I stand here to represent his honor, Mayor George W. Guthrie. As Dr. Holland has stated, the Mayor discovered at the last moment that he would be deprived of the great pleasure of welcoming you in person, and in view of the impossi-

bility of being here owing to the stress of public business, he requested me to represent him and in his name to extend to you his own welcome and the welcome of the citizens of this city.

"I am glad that this Association has chosen Pittsburgh as the place of its second annual meeting, and I can assure you that the glad hand of fellowship and hospitality will be extended to the best of our ability.

"When I asked the Mayor where the keys of the city of Pittsburgh were, as I desired to bring them with me, and present them to you, he said that when the walls of the city had been built and its gates erected, the workmen had forgotten to close and lock the doors. The keys have been lost, and, unless Dr. Holland in his search for another *Diplodocus* should come across them, it will be impossible to find them.

"Again in the name of the Mayor I welcome you to Pittsburgh."

Dr. Holland.—"Mr. President, Ladies, and Gentlemen: On the preliminary programme printed by the Local Committee of Arrangements, which is in your hands, you will see the statement that an address of welcome on behalf of the Trustees of the Carnegie Institute is to be made by Mr. W. N. Frew, the honored and beloved President of the Board of Trustees of the Carnegie Institute. But last night by telephone he informed me that owing to indisposition (a bad cold) it would be impossible for him to be present this morning, and, as the result of a conspiracy by my fellow members of the committee, I have been thrust into his place.

"On behalf of the Carnegie Institute I welcome you. I suppose that you have already learned that the Carnegie Institute is a complex of institutions. The original thought of the generous founder was the establishment of a library, but when he came to address himself to the task, which he had proposed to himself, he decided that he would do more than that. Having given to the city of Allegheny a library building, in which provision had been made for a small art-gallery and a hall, in which musical entertainments could be given, he decided that he would do as much for Pittsburgh. He invited a number of his friends into conference with himself and finally announced that in addition to the library he would make provision for an auditorium capable of comfortably seating a large audience, would provide the best organ which could be put in the place selected for it, would make ample provisions for an art-gal-

lery and also for a museum and a smaller lecture-hall in which the Academy of Science and Art and allied societies would have a place for meeting. In 1895 the building was formally turned over to the custody of the Trustees acting on behalf of the people of the city, who engaged to maintain the library. On that occasion Mr. Carnegie announced his intention of himself providing for the maintenance of the Art-gallery and the Museum and presented to the Trustees a million of dollars, the income to be used for the support of these two departments of activity. Not long afterwards he increased the endowment of the Art-gallery and the Museum by the gift of another million. But growth was rapid. It soon became apparent that the original edifice was too small. Mr. Carnegie then came forward with the proposal to apply the noble sum of five millions of dollars for enlarging the building. While this work was being done he determined to add another department of activity, and offered to provide the means for giving an industrial education along the lines of the Pratt Institute in Brooklyn and other similar schools to the young people of this community who have not enjoyed early advantages. He provided the money to erect the buildings and an endowment fund of two millions of dollars for this purpose. Recently he has increased the endowment of the Institute by the gift of four millions of dollars and has promised to add to this two millions to be specifically applied to the uses of the Technical Schools.

"About six weeks ago the splendid structure in which we are assembled was dedicated with appropriate ceremonies. The edifice represents an outlay of over six millions of dollars. It covers an area larger than that occupied by the Capitol in Washington by half an acre. There are fifteen acres of floor room under the roof. I am not including in this statement the Technical Schools, which occupy separate buildings on the opposite side of the ravine. The whole complex of enterprises is devoted to one great and noble purpose, the promotion of culture, and thus the promotion of the happiness of the people. The cultivation of the mind by making good literature accessible is sought for through the Library, in which more than a quarter of a million of volumes have already been assembled. Musical culture and enjoyment is provided in the Hall of Music, where one of the most superbly skilful masters of the art of music wields his baton over one of the most successful orches-

tras which has been assembled on the soil of the new world, and where every Saturday evening and every Sunday afternoon the public without charge are enabled to hear on the organ choice renditions of the works of the masters. Let me relate an incident in this connection. Not long ago a man spoke to a friend of mine in reference to these organ recitals, using substantially these words: 'I cannot sufficiently thank Andrew Carnegie for what he has done for the people of Pittsburgh in making music free to the people. I have been passing through a terrible struggle. I have been for two years on the apparent verge of bankruptcy. The strain upon my mind was at times almost too great to be borne. I resorted to the organ recitals for mental relief and comfort. I came to them as Saul came to hear the sweet harp of David and found strength and courage. I am through my conflict and have won, but I really believe I should not have done so had it not been for the refreshment and rest I found in this Hall of Music.'

"Then we have the Art-gallery which speaks for itself and for its Director, who is a member of our Association. You have been told in the art-journals and reviews that the present international exhibition is the most notable display of contemporary art which has been shown on this continent since the great exposition at St. Louis occurred.

"Of the Museum I may be allowed in this presence to speak freely. Its work represents only the beginning of what we hope to accomplish, but this beginning has in it, I think you will grant me, promise of much for the future. We have done a few things of which we may justly be proud. We have made mistakes, and some things which have been done well might have been done better. I do not wish any of you in passing through these halls to imagine that you are looking upon what we conceive to be final installation. The work of assembling our material and displaying it had to be done hastily. Seven weeks ago my colleagues on the staff of the museum and I were simply in despair. There was confusion everywhere, everywhere dirt and disorder, and Founder's Day only a week off. The day before the dedication it seemed to me impossible that things could be put into good shape, but energy won the day, and at least a semblance of order was attained. You will find many things as yet without labels. We have not had time to write and print them all. You will find many incongruities. The

hand of time will adjust these things. We are alive to our shortcomings and our faults. Our work, as I have said, is still in its infancy, but in the field of scientific research, which is the chief glory of a museum, we have done work which I think may be regarded as having been highly successful and important.

"Of the technical schools it is hardly necessary for me to speak. These schools stand for effort on behalf of the poor boy or girl who have not had a chance. There are over a thousand students enrolled, principally in the night classes. These schools are doing good work already.

"The whole complex of interests represents the benevolent purpose of one of the greatest captains of industry of this age, whose story is more wonderful than the tales of Eastern romance. His intent is to do good to his fellow men by giving them the means of acquiring knowledge, and of imparting to them the sweetness and joy of life.

"Once more on behalf of the Carnegie Institute and on behalf of its Trustees and Officers I cordially welcome you."

Dr. Bumpus.—"Mr. McCreery; we are very glad to welcome you as the representative of the honorable Mayor, and wish you to convey to him our compliments, and state that it is a great pleasure to meet in this city, a city which is so picturesquely adumbrated. We thank you for your hospitable greeting. We selected the city of Pittsburgh as our place of meeting, prompted in part by the fact of its most convenient geographical position. We would be much pleased to have you convey to the Mayor our congratulations on the selection of the site of the city. In our youth we only knew of the city because of its location at the junction of the Monongahela and the Allegheny rivers; now in our later years we find the city at times literally inundated by both of these rivers.

"I think there are here many who cherish the fond hope that somewhere a national museum of industry may be established. In such a museum, when finally established, it seems to me that Pittsburgh will occupy the position of the Diplodocus, revealing the fact that above all others it is suited for industrial development and the achievement of industrial success.

"Dr. Holland; in accepting the invitation which was brought to us at the meeting in New York from the Trustees of the Carnegie Institute by you, the acceptance was made, because in the first place

we felt that we would be welcome in Pittsburgh, in the second place because it was our desire to visit the museum, which was to be opened about the time of our next meeting. We chose Pittsburgh, and accepted the invitation of the Carnegie Institute by a unanimous vote. It is a real satisfaction to visit an institution of this kind. I think that our profession rather inclines us to accept the theory of gradual development, and to give up the idea of special creation, but on coming here, one gets the impression that special creation prevails at certain times. We see before us a great institution which has been called into being, as it were, by almighty fiat, and we realize that some one has labored all of the six days, and has possibly invaded the seventh, though entitled in it to rest.

"When the preliminary programs, which are in our hands, were distributed, though we knew that we were to be entertained in a most palatial structure, we were at once impressed by the superb character of the entertainment provided for us by the committee having the local arrangements in their charge. Representatives of other museums, who have come here prepared to urge that the next annual meeting shall be held in their city, have said: 'We would be delighted to extend an invitation to you, but we are afraid we cannot hope to offer such entertainment as Pittsburgh has provided.' Will you not receive for yourself and for the Committee of Arrangements our compliments, and express to all who have in any way prepared to make our visit among you agreeable and profitable, our sincere appreciation of the generous hospitality intended and shown.

"As a member of the Association I cannot refrain from personally expressing the feeling of gratification which I have in view of the fact that so many members have made a successful effort to be present at this meeting. There are those here who have undertaken to make a journey of three or four thousand miles for the privilege of being here a few hours, so I take it for granted that the more punctual we are in getting to work the greater will be the satisfaction. I therefore pronounce the Second Annual Meeting of the American Association of Museums in session, and we will proceed with the regular order of business."

The Secretary requested Dr. Holland, who had prepared a list of those who had signified their intention to be present to call the roll. This was done, and the following members were ascertained to be in attendance:

- Charles C. Adams, University of Cincinnati, Cincinnati, Ohio.
C. E. Akeley, Field Museum of Natural History, Chicago, Illinois.
F. C. Baker, Chicago Academy of Sciences, Chicago, Illinois.
John W. Beatty, Department of Fine Arts, Carnegie Institute, Pittsburgh, Pa.
George L. Berg, Washington State Art Association, Seattle, Washington.
Hermon C. Bumpus, American Museum of Natural History, New York City.
Arthur S. Coggeshall, Carnegie Museum, Pittsburgh.
T. L. Comparette, U. S. Mint, Philadelphia, Pa.
A. R. Crook, Illinois State Museum, Springfield, Illinois.
Miss Anna M. Deens, Pittsburgh High School, Pittsburgh, Pa.
George A. Dorsey, Field Museum of Natural History, Chicago, Illinois.
Earl Douglass, Carnegie Museum, Pittsburgh, Pa.
George Francis Dow, The Essex Institute, Salem, Mass.
Carl H. Eigenmann, Indiana University, Bloomington, Indiana.
O. C. Farrington, Field Museum of Natural History, Chicago, Illinois.
Wm. M. R. French, The Art Institute of Chicago, Chicago, Illinois.
Miss Anna B. Gallup, Children's Museum, Brooklyn Institute, Brooklyn, N. Y.
Benjamin Ives Gilman, Museum of Fine Arts, Boston, Mass.
Milton J. Greenman, Wistar Institute of Anatomy, Philadelphia, Pa.
Miss Delia I. Griffin, Fairbanks Museum of Natural Science, St. Johnsbury, Vermont.
Robert C. Hall, Hall Museum of Anthropology, Pittsburgh, Pa.
C. V. Hartman, Carnegie Museum, Pittsburgh, Pa.
Charles H. Hitchcock, Butterfield Museum, Dartmouth College, Hanover, N. H.
W. J. Holland, Carnegie Museum, Pittsburgh, Pa.
Anderson H. Hopkins, Carnegie Public Library, Pittsburgh, Pa.
Marshall A. Howe, New York Botanical Garden, New York, N. Y.
William J. Hyett, Department of Fine Arts, Carnegie Institute, Pittsburgh, Pa.
Lawrence W. Jenkins, Peabody Museum, Salem, Mass.
O. E. Jennings, Carnegie Museum, Pittsburgh, Pa.
Paul Hugo Isidor Kahl, Carnegie Museum, Pittsburgh, Pa.
Charles M. Kurtz, Albright Art Gallery, Buffalo, N. Y.
Rev. A. A. Lambing, Carnegie Museum, Pittsburgh, Pa.
Miss Elizabeth J. Letson, Buffalo Society of Natural History, Buffalo, N. Y.
F. A. Lucas, Brooklyn Institute of Arts and Sciences, Brooklyn, N. Y.
W. D. Matthew, American Museum of Natural History, New York, N. Y.
C. C. Mellor, Carnegie Institute, Pittsburgh, Pa.
Edward S. Morse, Peabody Academy of Sciences, Salem, Mass.
W. J. McGee, St. Louis Public Museum, St. Louis, Missouri.
A. E. Ortmann, Carnegie Museum, Pittsburgh, Pa.
O. A. Peterson, Carnegie Museum, Pittsburgh, Pa.
Magnus Pflaum, Pittsburgh, Pa.
Sidney Prentice, Carnegie Museum, Pittsburgh, Pa.
Percy E. Raymond, Carnegie Museum, Pittsburgh, Pa.
P. M. Rea, The Charleston Museum, Charleston, S. C.

Boyd P. Rothrock, Pennsylvania State Museum, Harrisburg, Pa.
R. H. Santens, Carnegie Museum, Pittsburgh, Pa.
Charles Schuchert, Yale Museum, New Haven, Connecticut.
J. A. Shafer, New York Botanical Garden, New York, N. Y.
W. H. Schoff, The Philadelphia Museums, Philadelphia, Pa.
Douglas Stewart, Carnegie Museum, Pittsburgh, Pa.
J. M. Stotsenburg, Wistar Institute of Anatomy, Philadelphia, Pa.
J. E. Talmage, Deseret Museum, Salt Lake City, Utah.
L. H. Townsend, Carnegie Museum, Pittsburgh, Pa.
Henry L. Ward, Milwaukee Public Museum, Milwaukee, Wisconsin.
Frederick S. Webster, Carnegie Museum, Pittsburgh, Pa.
C. P. Wilcomb, Hall Museum of Anthropology, Pittsburgh, Pa.
W. P. Wilson, Philadelphia Museums, Philadelphia, Pa.
August Zeller, Department of Fine Arts, Carnegie Institute, Pittsburgh, Pa.
Miss Alicia M. Zierden, Pennsylvania State Museum, Harrisburg, Pa.

Upon motion the formal reading of the minutes of the last meeting, printed copies of which were in the hands of the members, was omitted and the Chair called for any amendments or suggestions looking to change, which those present might desire to propose. Professor J. E. Talmage called attention to a typographical error in the Constitution on page 13 of the Minutes in the paragraph of the Article on Membership, which relates to Honorary Members. Instead of the word "selected" in the fourth line of the paragraph he stated that the word "elected" should occur. Upon motion it was ordered that this change be made, and that this paragraph be so printed in future editions of the Constitution. The minutes of the first annual meeting were then upon motion approved.

The Chair called attention to the fact that the first clause of the Article on Membership in the Provisional Constitution provides that all persons who might in any way have signified their willingness to become members of the Association and who might have paid their dues within six months after May 15, 1906, should be recognized as "Charter Members." The Chair stated that the Council, in view of the delay which had occurred in publishing the Minutes of the last meeting, had somewhat arbitrarily extended this time to nine months, and asked the Association to ratify the action of the Council.

Upon motion of Dr. W. J. Holland it was

"Resolved, That the privilege of being included in the number of those who are entitled to regard themselves as 'Charter Members' of the Association be extended so as to include all who may

have been present at the first meeting and who may be present at this meeting, and who have qualified by paying their dues for the year 1906-7; and that the clause of the Provisional Constitution be modified accordingly."

The Chair explained that the Constitution adopted at the last meeting of the Association was adopted provisionally, and that the Council had been made a Standing Committee upon the Constitution, with instructions to report at this time any changes or alterations which might seem desirable. He stated that except for the matters just fixed by the action of the Association no changes had been called for, and announced that by common consent, unless objection be made, the Constitution will be accepted as having been finally approved and adopted. There being no objection, the Chair stated that the Constitution is adopted finally.

The Chair called attention to the fact that certain resolutions which had been presented at the last meeting and referred to the Council had been relegated to committees appointed by the Chair, with the request that these committees would report at this meeting. The first resolution is as follows:

"Resolved, That it is the sense of this Association that the American Association of Museums should be allied with the National Educational Association."

"Resolved, That a special committee of three be appointed to confer in reference to the foregoing suggestion with the authorities of the National Educational Association, and report at their convenience to the Association or to the Council."

The Chair stated that, owing to absence from the country during the greater part of the last fall and winter, Director Skiff, who had introduced the resolution, had been unable to serve on the committee, and that Dr. W. H. Goodyear had been therefore asked to act as chairman. But Dr. Goodyear has recently gone abroad, and there does not therefore seem to be any one present to report. "Perhaps it would be best to let the matter go over for a year, and it seems to the Chair at all events that a proposal for affiliation should come from the older and larger association."

Dr. W J McGee.—"Mr. President; it happened that I had a conversation with Mr. Skiff about the time this resolution was introduced. I was impressed by the fact that the National Educational Association is organized with subdivisions into departments or sec-

tions in such a manner as to allow the various lines of educational activity in this country to be represented. There is, however, no recognition, as yet, of the activity of museums. Now, Mr. President, some of us regard museums as representing a coming type of educational institutions. Museums have been developing and increasing with greater rapidity than any other institutions in recent years. The question is raised by the Chair whether it would not be best to allow the matter of affiliation with the older and larger society to be brought forward by that body. Knowing the circumstances, as I do, it is quite clear to my mind, that, if such a department or section in the National Educational Association is to be formed, museum men should see to its erection. The time is opportune for the movement, whether it be undertaken by this body or by men identified with museums, who may take the matter up independently. For myself I think that a committee from this Association should take immediate action in the premises. Accordingly I am of the opinion that it would be well for this Association at this meeting to reorganize our committee, and having first made my argument, I now move you, sir, that the President of the Museums Association of America be authorized to appoint a committee to act pursuant to the original resolution."

The motion was seconded by Dr. W. M. R. French.

Dr. E. S. Morse.—"Mr. President; I desire to say that the point raised by yourself commends itself to my mind. The American Educational Association has a membership of fully five thousand. Our Association is still small in numbers, and in a certain sense is in its infancy, though vigorous. It seems to me that it would be more dignified for us to wait for an invitation to come to us from the larger and older society."

Dr. George A. Dorsey.—"Mr. President; I do not think that the American Association of Museums is going to be as timid in matters of this sort as Professor Morse apparently thinks that it ought to be. If we sit and wait for an invitation to come to us from the National Educational Association, we might have to wait a long time. I think I know perhaps as much as any other person about what Mr. Skiff had in his mind when he offered the resolution which has led to the present discussion. I know that he has talked the matter over with several of the prominent members of the National Educational Association. They agree with him that it is desirable

to found a section in that Association devoted to museums and museum interests, and it seems to me that it is quite right for us to endeavor to help that idea along."

After an opportunity had been given for further remarks, the motion was put by the Chair and unanimously carried.

The Chair announced that he would appoint as the committee upon the resolution Dr. W. J. Holland, Dr. W J McGee, and Dr. George A. Dorsey.

The Chair.—"At the meeting in New York Mr. O. C. Farrington submitted the following resolution:

"*Whereas*, Museums are institutions devoted to public welfare and to the discovery and dissemination of knowledge, and their curators devote themselves to the cause of popular education, therefore the American Association of Museums hereby

"*Memorializes* the Trustees of the Carnegie Foundation for the Promotion of Teaching, requesting the admission of the curators of American museums to the privileges of this foundation under such regulations as shall hereafter be agreed upon by a committee of this Association and the Trustees of the Foundation.'

"A committee consisting of Dr. W. J. Holland, H. C. Bumpus, Henry F. Osborn, Benjamin Ives Gilman, Edward S. Morse, F. J. V. Skiff, W J McGee, W. M. R. French and Sir Caspar Purdon Clarke was appointed to take this matter up. Will Dr. Holland report for this committee?"

Dr. W. J. Holland.—"I am forced to stand before this meeting and say *peccavi!* I am guilty of the sin of having omitted formally to bring the resolution referred to the excellent committee of which you honored me with the chairmanship, before the Trustees of the Carnegie Foundation. Nevertheless, I may say that I have had some conversation with a couple of the gentlemen charged with the administration of that trust. I gathered from what was said to me that there is but little reason to hope that the trustees will regard those who are concerned in the work of museums as coming within the scope of the fund. I think the thought of the trustees of that excellent foundation is that its benefits should be restricted to those who are engaged in work of a strictly pedagogic character. However, the matter may be fully and authoritatively determined, and if you will accept this brief statement as being in the nature of a report of progress I can assure you, that now that the work of putting this

museum into something like order has at last been accomplished, I will have more time at my command, and will be pleased to endeavor to obtain a definite answer to the application which our Association desires to be made. The claims of those who are engaged in the educational work which museums are doing are certainly worthy of attention."

Upon motion the report was accepted and the committee continued.

The Chair.—"The next resolution presented at the last meeting of the Association was offered by Dr. George A. Dorsey. It is as follows:

"*Resolved*, That a Special Committee of three be appointed by the Chair to consult with the proper authorities for the purpose of endeavoring to secure fourth-class postal rates upon the publications of museums and other educational institutions, in cases in which such publications are distributed gratuitously, but cannot be issued at stated intervals of time.'

"I call upon Dr. Dorsey to explain the resolution, explaining the necessity for such action, and to report what has been done since the last meeting."

Dr. Dorsey.—"Mr. President; I have spent some time in correspondence with the officials in Washington, and have obtained a good deal of information from our own and other museums. I have a report to make, but as I have not had an opportunity since I arrived this morning to get at my papers, I ask you to hold this matter over until later in our session."

The Chair.—"Mr. W. A. Bryan presented a resolution which was referred to the Council at the last meeting. It related to the establishment of some form of journal, which should be the official organ of this Association. The resolution empowered the Council to appoint an editor and assistant editor and to take all steps which might seem to be necessary in the premises. I will ask Dr. J. E. Talmage to report for the Council."

Dr. Talmage.—"The Council has discussed the matter of the establishment of a periodical, which might serve as the official organ of this Association, and is of the opinion that circumstances do not at present warrant the establishment of a periodical of the sort, which apparently was in the minds of those who proposed and supported the resolution we are considering. The work of our Association is only in its beginning. The funds at our command are not suffi-

cient to justify us in so large an undertaking as this necessarily would be. Besides there are other journals which may be made the channels of publication for such papers as we may desire to have given to the public. A further consideration of the matter in the light of experience may enable the Association in the near future to act along the lines suggested in the resolution, but the Council is decidedly of the opinion that the time has not yet quite arrived to embark upon so important an undertaking."

Dr. Holland.—"As a member of the Council I desire to say that our position has been stated by Dr. Talmage with absolute correctness. To start a journal or periodical involves a considerable outlay of money at the beginning, as every one who has had experience in such matters knows. Our treasury is in a healthy condition, but our funds, as the report of the Treasurer will show, are far from being vast, and they are not accumulating rapidly, nor can they. To undertake the publication of a monthly or bi-monthly journal would involve the initial outlay of several thousands of dollars at least. I do not think it would be right to lay a burden of indebtedness upon the association, which has just been organized; more especially, as has been pointed out by Dr. Talmage, when journals already well established are willing to grant us the use of their columns for the discussion of matters relating to the activities of the museums represented here. I am in receipt of a very kind letter from the editor of *Science*, in which he expresses the hope that full and accurate reports of the proceedings of the present meeting of the American Association of Museums will be sent to that excellent journal for publication. I have no doubt that any papers of special interest discussing matters of museum technique would also be thankfully accepted by *Science*.

"There is a great difference between the establishment of a regular periodical and the publication of full reports of the proceedings of our meetings. I think it is desirable that a permanent record of our proceedings should be maintained. It fell to me to edit in part the thin pamphlet which is in your hands and which contains an account of our last meeting. I sincerely hope that the way may be found to publish something better and fuller in reference to the present meeting. At the last meeting only a few of the papers were submitted in manuscript. I trust that every one who presents a paper at this meeting will hand in the manuscript to the secretary,

and that briefs of all remarks made by those who take part in our discussions will also be presented, so that a full and accurate report may be prepared and printed. The proceedings of this meeting ought to be printed, and will, I think, make a creditable volume. If we succeed in doing as much as this we shall have accomplished a great deal."

Benjamin Ives Gilman.—"Mr. President; while it is true that papers read before this Association can find preservation in various journals, and more particularly in journals of science, it is well to recall that not a few of the gentlemen here present are not directors and curators of museums of science. I represent a museum of art, and it has seemed to me from the start that we should have some sort of a periodical through which there might be an exchange of ideas and in which the salient features of papers presented at our meetings might be preserved. We listen to a paper, carry away an impression, and then perhaps after six months have passed, we wish to refer to it to get some definite statement of fact. We discover that the paper has been published in some weekly or monthly which is not at our elbow. We are disappointed and inconvenienced. With all due deference to Dr. Holland, I do not think that it will be necessary for the Association to expend thousands of dollars in doing what I think we desire to have done. We can accomplish all we desire for a very much smaller sum than one thousand dollars. We wish a medium of communication, at all events a medium for the preservation in permanent form of the discussions at these meetings, if only in abstract. If we cannot have it in the form of a monthly or quarterly, would it not be possible to publish a volume of proceedings, which would be useful to members in days to come? I think it most essential that we should have some medium of publication, however inexpensive, and that we should begin it now."

J. E. Talmage.—"The action which was taken by the Association at the last meeting in referring the resolution under discussion to the Council, instructing them to take under advisement the matter of preparing some form of publication and appointing an editor and associate editor, did not necessarily imply that the Association intended the Council to appoint an editor and associate editor and to make arrangements for the publication of the proceedings of the present meeting. The resolution simply instructed the Council to take the matter 'under advisement.' This the Council did, and in

the report on behalf of the Council which I have submitted to you the Council states that it did not deem it wise to undertake the publication of a journal or periodical appearing at stated intervals. The Council followed the instructions of the Association and returns a negative recommendation, but qualifies its report by the statement that perhaps a way may be found to meet the desires of the Association in the near future."

The Chair.—"As the Chair understands, the matter still rests in the hands of the Council to be solved."

W J McGee.—"I would like to secure an expression on the part of those present, and would therefore move that the resolution in the hands of the Council be again adopted, with the addition of the words, 'during the ensuing year.' In order that no person may be in doubt as to the nature of the motion, I will read the resolution as I would like to have it adopted: '*Resolved*, That it is the sense of this meeting that the Council of the American Association of Museums be instructed to take under advisement the matter of preparing some suitable form of publication which shall be the official organ of this Association, and that it is hereby empowered to appoint an editor and associate editor and to make all necessary arrangements during the ensuing year for the publication of such museum journal as they may deem necessary.'"

A Member.—"Does that resolution imply that a periodical journal be published, or that the suggestion of Dr. Holland that the papers read at this meeting may be published as a volume of annual proceedings, be carried out?"

W J McGee.—"My understanding is that under the resolution the form of the publication will be left to the decision of the Council."

Dr. W. J. Holland.—"Mr. President; there is a very great difference between publishing a report of the proceedings of a meeting like this and establishing a journal which is to appear periodically as a monthly, bi-monthly, or quarterly. The papers read at this meeting would contribute something to the filling out of the pages of such a periodical journal, but there would not be enough supplied at such a meeting to justify the publication of a journal to run continuously through a year. The editor would have to solicit contributions. A quarterly or a monthly journal would probably require some illustration. A great deal of the time of the editor would

have to be devoted to the work. The position of an editor is not altogether an agreeable one. Even when a large quantity of material is supplied to him he is under the necessity of making a wise selection; not everything which comes to his hands is fit for publication in the form in which it is presented. Articles often lack literary style and finish, and sometimes when possessing literary style articles lack substance. I frankly say that I would not like to be the editor of a journal such as evidently is in the thought of the minds of some who are here present unless I had autocratic powers and considerable financial resources at my command. There is a field for such a journal in America, but this publication would at the outset be a losing proposition. The experience of those who have embarked in such undertakings is discouraging. Only ten or twelve per cent. of ventures of this sort succeed, and that only temporarily. I for one am firmly of the opinion that instead of attempting to publish a periodical it would be better for us, as I have already suggested, to confine ourselves to the publication in reasonable fulness of the proceedings of our annual meetings including the papers read before the Association."

A Member.—"No one among the members of this Association, it seems to me, has time to devote to the editorial work which would be called for by the publication of a journal."

F. A. Lucas.—"Mr. President; I am quite convinced that Dr. Holland's idea that a volume of proceedings covering the papers at this meeting would be the safest thing to undertake."

Dr. W. P. Wilson.—"I think it wise that this matter should be, as provided under the resolution, referred to the Council for determination. It may be of interest to know that there are in the treasury at the present time over four hundred dollars. The papers to be presented at this meeting are numerous; to publish all of them in a single volume might possibly require a small subscription from those who are present. I am quite certain that four hundred dollars will not pay for the publication of an annual volume containing a large number of papers in a considerable edition. I do not oppose the publication of a journal or a volume of proceedings, but I desire that the members of the Association should know the amount of money which is in the treasury, and of course I should oppose expending any money not in the treasury. I take it for granted that I am not to be Treasurer after this session of the Association."

Dr. George A. Dorsey.—"It appears to me that we are not ready to undertake the publication of a periodical journal, but do want some sort of a volume of proceedings. It seems to me that the simplest thing would be to instruct the Council to print a volume covering the proceedings of this meeting, and that the President of this meeting and the two Vice-presidents should be a committee upon publication with authority to appoint an editor, who might undertake to canvass for the volume and print it, provided the Treasurer has sufficient funds. I think the power of the editor should be very much limited, and that he should be controlled by a committee consisting of the President and two Vice-presidents. I do not think that any one man should have power to reject and cut up a manuscript."

After considerable further discussion, in which various members took part, it was finally

"Resolved, That it is the sense of this meeting that the Council be instructed to take under advisement during the ensuing year the matter of preparing some suitable form of publication which shall be the official organ of this Association, and is hereby empowered to appoint an editor and associate editor, if necessary, and to make arrangements for the publication of such journal or volume of proceedings as may be necessary."

The Chair.—"At the meeting of the Council in New York a committee was appointed consisting of Dr. W. J. Holland, Messrs. Halsey C. Ives, W. M. R. French, George F. Kunz, Edward Robinson, and Benjamin Ide Wheeler, to endeavor to coöperate on behalf of this Association with representatives of other educational institutions in an endeavor to secure the repeal of the duty now imposed by the United States Government upon works of art coming from abroad. This committee is not prepared to report, but will be continued.

"A committee consisting of Messrs. Rathbun, Wilson, and Henshaw was appointed at the last meeting of Council to endeavor to secure special privileges of transportation on vessels belonging to the United States Government for collections destined to be placed in the museums of the United States. The only member of that committee present, I believe, is Dr. Wilson. Will he report?"

Dr. Wilson.—"In the absence of the other gentlemen who were associated with me on the committee I am not able to do anything

but report progress, and request that the committee be continued."

This was agreed to.

The chair announced the appointment of a Committee on Program, consisting of Messrs. Lucas, Talmage, and French, and announced that this committee would designate the time for the presentation of all papers which the members might desire to read during the coming sessions.

Mr. Lucas, for the Committee on Program, announced that the first paper which would be read is a paper on "Labelling in Museums," presented by Mr. Henry L. Ward, Director of the Milwaukee Public Museum.

THE LABELLING IN MUSEUMS

The many museums of the country exhibit great divergencies in the extent to which labelling is carried. In some the specimen having a label that can be seen by the visitor is an exception; in others they are more numerous, but are a mere mention of name and locality; and so they pass through various degrees of utility to the public, until we arrive at a stage where the label entirely overshadows the specimen, and the exhibit partakes most decidedly of the nature of a text-book illustrated by specimens.

I have heard a museum curator express the opinion that labels were useless to the public, as they did not care to read them; and we are all aware that certain visitors will chase an attendant half the length of a large hall to ask about a specimen, the well-printed label of which tells precisely what he wishes to know. Notwithstanding such occurrences, I am of a sufficiently optimistic turn of mind to believe that the average museum visitor wishes to know something about what he is viewing and will avail himself of the opportunity to learn, provided it can be done without too much exertion to eye or brain. If such is the case, then the name and locality labels alone will not be of much value to him, while the extended text-book system will weary and discourage one not an enthusiast. The student to whom the latter system might be expected to appeal is presumably in personal possession of text-books; so that the system would be largely wasted on him, and the repellantly pedantic impression that it makes upon the average citizen does, I believe, more

than offset its ideal usefulness. For some reason when people have ceased to attend school few of them like to go back to it.

I believe that in the art of label writing, than which there is probably no more important nor difficult task that falls to the lot of a curator, it is to be accepted as a cardinal principle that one should avoid pedantry, or the appearance of trying to teach; and, nevertheless, that sufficient teaching should be accomplished to enable the visitor to take an intelligent interest in the exhibits.

At one time I fancied that people would certainly wish to know more about things of which they already had some knowledge than about those of which they had very little, and that they would read short biographical sketches, about two hundred and fifty words in length, attached to groups of sea lions, bison, musk oxen, wapiti, etc., with greater avidity than similar labels placed on a collection of Wisconsin pearl-bearing naiades and free pearls, or much shorter, but more technically descriptive, individual labels on a series illustrating the evolution of the gun. Such, however, I find not to be the case, and the probable reason seems to be that a certain degree of familiarity with these mammals and the fact that their relative attitudes are calculated to make the groups self-explanatory seems to satisfy a large number of people, whereas the other exhibits mentioned are less generally familiar and are but slightly self-explanatory; so that, in order to make anything of them, the visitors are forced to consult the labels.

My group label for the pearl exhibit is, I believe, our record for length, containing six hundred words, and yet hundreds of people have been seen to pore over it, apparently reading every word, as though it were a matter of great interest to them; and only the other day I noticed a visitor with paper and pencil apparently making a full transcript of it.

The labels for the better-known exhibits, such as the groups of mammals before mentioned, are read by a sufficient number of people to make their preparation well worth the while.

In the composition of labels I have laid down the rule that the writer should approach the work, as far as possible, mentally transposing himself into the position of the ordinary visitor to a museum, determining what questions would probably arise in his mind and that he should then proceed to answer these in as clear a manner as possible.

It is not necessarily essential that the label should stop at this, it may be and very often is advisable to tell some things that the visitor would not know enough to ask; but I feel that the answering of his probable questions is of prime importance, because without this he will not be induced to acquire the habit of reading labels.

From a scientific standpoint it is of very little importance whether our mastodon skeleton is 7 feet 8 inches or 8 feet 7 inches in height, but, if the visitor finds the answer to his natural query respecting this detail answered on the label he will then take a moderate dose on the phylogeny of the proboscidiens with better grace.

For many years I have clung to the heterodox view that, if one thoroughly understands a subject, he can explain it to a non-professional person of average education without the use of technical terminology; and, so far as practical, I blue-pencil unexplained technical terms on labels, except where they are used in repetition after the explanation has been given.

The general make-up of labels, the kind and color of paper, size, style, and fullness of face of type, quality of ink, and perfection of impression are details that go far in determining whether or not our visitors will read museum labels. The typewriter is an abomination for this purpose, greatly inferior even to a well-done hand-printed label executed with a pen. The labels should, if possible, be printed at the museum, as better results will probably be obtained than if given out as job work, and it is vastly more convenient.

My experience tends to the belief that the public will submit to a considerable amount of instruction, provided it is given in an unobtrusive manner, and that labelling may go a long way towards popularizing a museum.

The Chair.—"We are certainly indebted to Mr. Ward for his excellent paper, which is now before you for discussion.

Dr. W. J. Holland.—"In welcoming you this morning on behalf of the Trustees of the Institute I begged you not to accept what you may see in the Museum as representing our ideals. Our work here is in its infancy. This is particularly true in reference to the labelling of the collections, even those which are on exhibition. I hold in my hand a proof which I received from our printer this morning. This is the third proof of this label which the printer has sent me. These three proofs illustrate the difficulty that is often encountered

in selecting type. All of the labels submitted to me have been neat, but testing them by the eyes of friends and acquaintances I have found out that the first two proofs submitted to me could not be easily read. A label is of no use unless it can be read easily. I dislike to see persons studying the collections of a museum uneasily adjusting their glasses and pressing their faces against the cases in order to see. In this particular case the label must be read by the observer standing at a distance of four or five feet from the object. I do not know whether I have selected the right type as yet. I found that a label 3 inches long by 2 inches wide was utterly useless. The label I hold in my hand is 6 inches long and 3 inches wide, and the type has been greatly increased in size. The selection of type, in view of the varying distances at which labels must be read, has frequently occasioned me a great deal of trouble."

E. S. Morse.—"The Association could employ all of its time in the discussion of this question.

"I am resolving that kind of a question now, and have come to the conclusion that labels should vary in size according to the size of the groups represented. There should be family labels, generic labels, specific labels, and, if possible, the name of the family and the genus should not be represented again and again. A large case containing a large group should have a large group label, which could be read a mile away. I am at present engaged in labelling a collection which was presented to us in exchange by an educational museum at Tokyo. Where the majority of the specimens in a large group are given by one donor let the chief label of the group give the name of the donor; do not repeat it upon every object in the group.

"It seems to me it might be a good thing if we could decide upon a standard label to be used, just as the cards published by the Congressional Library for the publications of the United States Government are used. The Library Bureau supplies libraries throughout the world with cards of the same size. In the same way if we could unite on a definite size of label and style of type, labels suitable to be used in any of the museums might be printed at one central bureau and supplied as they are called for."

F. A. Lucas.—"The Manchester Museum has attempted to do just that which Professor Morse speaks of. Mr. Bather relates the following incident in regard to one of the labels of the Manchester Museum. The label was as follows:

"THE LION

A DIGITIGRADE CARNIVOROUS MAMMAL
BELONGING TO THE FAMILY FELIDAE.

"A man seeing the label asked for an explanation, and was told that the label meant that the lion is a big cat which walks on the tips of its toes and eats flesh. The man replied: 'Then it appears that the lion is a big kind of cat. Why in thunder didn't the man who wrote that label say so?'

"The National Museum took up this question of labels at one time. A certain size was adopted for each style of labels. The labels were to grade down exactly as Professor Morse explains. The only trouble was that the scheme didn't work; and I do not think there are a hundred labels on the specimens in the National Museum which were there twenty-five years ago. There are times when you wish to put a big label on a small specimen, or a small label on a large specimen.

"You cannot make the explanations which you give on the labels too simple. A friend of mine says that the average run of visitors to natural history museums are little better than children, and content themselves with asking very simple questions. I think it was Professor Scott of Princeton who said that the duty of a librarian in preparing a catalogue was to bear in mind that he was making a catalogue for fools. Those in charge of the labelling of a museum should insist upon making the labels simple, so that they may be readily understood.

"I discover that in Brooklyn the public is very much given to the reading of labels, more so perhaps than in any other community in which I have been; certainly much more so than is the case in Washington. Perhaps this may be due to the fact that we have fewer specimens and fewer labels to read in Brooklyn.

"I do not believe in a central bureau which would undertake to provide a standard label to be used in the various museums of the country. I do not believe that that scheme would prove practical. While our wants in a general way are alike in all museums, our collections vary immensely in their origin and content. No central bureau could provide the museum of the Brooklyn Institute the labels which we require, and I do not think that any central bureau could provide the labels, for instance, which would be required here in

the Carnegie Museum. There would be a very limited use for such labels.

"As regards type, I have found that the 14 DeVenne is a good size.

"Museum officers should not always be blamed for failure in making themselves understood; they are not always responsible; some of the blame rests at the door of careless observers. I remember at the United States National Museum that we put up the skeleton of a whale which hangs from the ceiling. In order that the labels might be read easily we made them three feet long and two and a half feet deep. Dr. Billings said to me: 'Lucas, why don't you put up labels six feet long?' I acted upon the hint, and while I was at work putting the labels in position a man came into the hall and looking up asked: 'What are those big things up there and what are they for?'

"The three things, it seems to me, in writing a label are, first, to state what the object is; secondly, where it came from; and, thirdly, what is the special interest or significance attaching to it. Those are the three questions which people are apt to ask themselves. If you will state these three things upon your label I agree with Mr. Ward that you will get people to read your labels. Dr. Billings once said to me: 'If you think people do not read labels put something on the label that you do not wish them to know, and you will presently find out that the label has been read.' If you make a mistake in a label, even in punctuation, it will not escape ultimate observation.

"I think labels should not be too technical. We are remedying that. There is no country perhaps where more thought is given to the matter of the preparation of labels than America. It is worth noting that as a rule labels are not easy to write, and there are specimens in our own museum in Brooklyn the labels upon which I do not approve of, but which I have given up attempting to improve because I am in despair about the matter."

J. E. Talmage.—"There are a great many small museums in this country which cannot afford to provide labels which are costly and elaborate, and certainly cannot afford to print their labels. Such museums may have their labels prepared in a good style of handwriting or hand-printing. In the Natural History Museum, at South Kensington, in the department of minerals, the plan suggested by Dr.

Morse has been carried out. A large label covering a group is printed in plain, fairly large type on cards or stiff paper; then smaller labels are printed for the individual, ordinarily small, specimens. When these labels have been set up they are reproduced in book form. The type is not too large to be used on the page of an ordinary book. The visitor need not stop when consulting a collection to transcribe the labels, for he can get for six pence a copy of the pamphlet in which these labels are printed in book form, upon the margin of which he can make any annotations which he may desire to make. In many smaller museums it would be impossible to print a catalogue of a collection in this way, but even in small museums I think there might be a sufficient sale of such a pamphlet list of labels to pay for the cost of publication."

Benjamin Ives Gilman.—"A learned Japanese friend who was our adviser, when we were installing our archaeological collections from Japan, suggested to us that we should have no labels, but should instead print a catalogue in pamphlet form. We followed the hint, and, instead of formally labelling the collections, we have employed a printed sheet, which the visitor can retain as his own and make notes upon it. We feel that through the use of leaflets, where such a device is possible, we can get away from a great deal of the trouble, which arises in connection with the question of labelling collections."

J. E. Talmage.—"I would like to make a suggestion. When the American Library Association meets, the Library Bureau makes it a point to put upon exhibition all the latest devices employed in libraries, so that everyone who attends the convention is quite sure to see these things. The question of labels which we are discussing is one of very great importance. Might I not suggest that at the next meeting of our Association the different museums arrange to present a set of labels which they employ. An exhibition of labels, it seems to me, might be interesting, and we might be able to pick out those which in our judgment are the best. I think such an exhibit would add to the interest and value of our next meeting."

Benjamin Ives Gilman.—"Labels as ordinarily used do more to interfere with the artistic effect of exhibitions than anything else. In the case of a collection of beautiful medals in our museum in Boston I undertook to put numbers in the case with the medals. The beautiful effect of the medals was in part destroyed by the numbers.

The exhibit had a 'spotted' appearance. I then decided to arrange the medals in rows, and at the side of the exhibit to place a long label, which referred to the medals as the first or second medal to the right in a certain row, etc. In this way I removed the label wholly to one side and secured a better effect from an artistic standpoint. It seems to me that the labelling of collections calls for the exercise of intelligence and artistic instincts on the part of the curator in each individual case. It is impossible to prepare a uniform style of label which shall be used throughout the whole of a great museum. The first requirement in the label is legibility; in the second place the label should be subordinate to the object with which it is connected; it should not obtrude itself as of more importance than the thing labelled. In cases where we have great flamboyant gilded labels attached to the frame of a picture the labels detract from the effect of the exhibition. In the National Gallery in London they employ a single strip, which is attached to the frame, giving the name of the donor, and below the name of the artist. The device is simple and capable of being carried out in uniformity, but nevertheless is objectionable, because it introduces a disturbing element."

F. C. Baker.—"I represent one of the smaller museums. It has been said that they cannot afford to print their labels. I venture to differ. We have been printing our own labels for seven years. We have our own printing press. A small printing press can be obtained for fifteen dollars. It is not difficult to employ some one, who may perhaps perform other duties, who is able to devote a good deal of time to the composition of labels, which are then printed upon a little hand-press. Labels should be printed upon tinted paper in harmony with their surroundings. They should never be printed upon clear white. A museum should be thoroughly labelled."

Dr. H. C. Bumpus.—"In discussing the interesting question before us it seems to me that we are discussing a number of different things, because labels have to perform different functions. I have had a feeling for some time that the desire of the visitor might be ascertained. Those connected with natural history museums should visit art collections, presuming them not to be connoisseurs in matters of art, and, on the other hand, those who are connected with art museums might do well to visit natural history museums, and

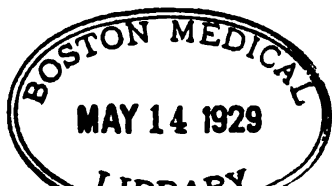
thus we might mutually learn from each other and receive helpful suggestions from each other.

"Some time ago I wished to learn something about bronzes in a city which I visited. I imagine that my approach to that museum was made very much as a person visiting a natural history museum might approach it when anxious to ascertain as much as possible about the collections there exhibited. I found that this collection of bronzes was very thoroughly labelled, each piece having a label attached to it stating the time at which the piece was made, by whom, and at what factory, but frankly, without intending to speak lightly, I desire to say that I came away after a rather lengthy visit to this museum absolutely uninstructed upon the subject of bronzes.

"When I visit a museum it is generally with a practical desire to learn something. I do not care to be told those things which are obvious and which must suggest themselves to the mind of any reasonably well-educated person without a label. In looking at a collection of pictures I should like the labels to tell me what characterizes the pictures displayed; and if arranged in groups, displaying the work of a school, I should like to be told what are the characteristics of that school, so that I may afterwards recognize the work of the painters of that school. I should like to have information given me pointing out what are the characteristics of the style of a Whistler, or of a Corot, for example. Such information would not probably be best conveyed in a label; it might be given in a guide-book.

"I am inclined to think it would be a good idea, where it can be done, to have instructors whose business it should be to explain to visitors in small groups what the things are. It seems to me that rooms should be labelled. I feel very much more at home in a museum when I have my points of the compass. When a certain assemblage of specimens is brought together into a room it must have been with a definite purpose by the director or curator having charge. There ought to be somewhere in every room a label, or a sign, if you please, which will give a general idea of the contents of that room or gallery.

"I have the utmost regard for everything connected with the National Museum at Washington. I think it is a splendid institution, and feel proud of it as an American citizen. I was there recently and went through the Hall of Ethnology. There are a



great many full figures which show the different races of North American Indians, but there is nothing in that hall to give you an accurate idea of the distribution of the various North American tribes. A visitor might remain there for a long while, and study everything carefully, but he would come away with a very hazy idea of the whole subject of the distribution of the aboriginal races of North America. There should be a plan underlying the arrangement of collections in the different halls of a great museum, and that plan ought to be set forth in such a way that it would be easily comprehended by those who resort to the institution for instruction."

Dr. W. J. Holland.—"Mr. President; the hour for adjournment has come. The Trustees of the Carnegie Institute have made provision that the members of the Association shall lunch as their guests in the restaurant of the Institute, not quite completed, but made available for the occasion today. I wish to say, that, after we have lunched, the Association will have an hour in which to inspect the library and the various halls and galleries of the Institute. Mr. Anderson H. Hopkins, our Librarian, has returned from his visit to the south, and is with us this morning. Mr. Beatty, the Director of the Department of Fine Arts, and his assistants, the gentlemen composing the staff of the museum, various members of the board of trustees and our local friends will take charge of those who are our visitors from distant places, and will be pleased to show you over the Institute and give you all the information possible.

"I wish also to state that a photographer is in waiting now and desires before we go to luncheon to photograph the members of the Association. I would suggest that before going to the restaurant we step for a moment to the main entrance of the hall in which we are seated and there upon the steps allow ourselves to be photographed."

Adjourned at 12:30 to meet at 2:30.

Afternoon

The Association reconvened in the Lecture Hall of Science at 2:30 P. M., and proceeded at once to the reading of papers.

Mr. Frank C. Baker, Curator of the Chicago Academy of Sciences, presented a paper upon

SOME INSTRUCTIVE METHODS OF BIRD
INSTALLATION

The nineteenth century has witnessed many sweeping changes in science, art, mechanics, and in fact in all departments of human industry. In none of these subjects have the changes been more radical than in our public museums. Doubtless the minds of all present run back to the time when our museum collections consisted of case after case of families, genera, and species arranged in strict order of classification, but without a single label to tell the lay visitor anything of the habits, geographical distribution, or economic value of the objects exhibited. The speaker well remembers a certain museum in which were exhibited 25,000 mounted birds, so crowded in the dimly-lighted cases that it was difficult to distinguish one bird from another, and with no labelling save a written tag telling the scientific and the common names, where shot, and by whom presented. This condition prevailed fifteen or twenty years ago in all of our museums and may still be seen in not a few museums of note.

Dr. Bumpus has recently¹ expressed the opinion that the unsatisfactory condition of many museum exhibits has been due to the desire of the curator to secure adequate storage room for his specimens and with this opinion we must all agree. From this attempt to store the material in a systematic and accessible manner has arisen the present unsatisfactory condition of many, if not most, bird collections. It is needless to add that a collection arranged with the storage idea in view has little or no value as an educational exhibit and in many cases degenerates into a jumble of birds. If, as Dr. Bumpus has pointed out, we arrange and install our collections with a view to the inculcation of ideas, then each exhibit will be prepared to call the visitor's attention to some one of the interesting or instructive features of the object shown.

The speaker desires in this paper to present a few examples of what a museum of moderate means and attainments may do in building up an educational collection of North American birds. Of the two hundred and fifty or more museums in the United States, but a very small percentage have made any attempt to arrange their bird collections in such a manner as to instruct the public.

¹ *The Museums Journal*, VI, No. 9, p. 297, March, 1907.



GROUP OF CORMORANTS MOUNTED IN ONE OF THE CASES OF THE
CHICAGO ACADEMY OF SCIENCES



Among the larger museums that have adopted the educational methods of installation may be mentioned the American Museum of Natural History, the National Museum, the Brooklyn Institute of Arts and Sciences, the Field Museum of Natural History, in Chicago, and the Carnegie Museum of Pittsburgh. The Boston Society of Natural History and the Milwaukee Public Museum, as well as some others, are also producing commendable results along this line.

Before presenting in detail the methods used in the ornithological collection of the Chicago Academy of Sciences, it may be well to consider briefly the nature of our museums and the character of their visitors. Broadly speaking, museums may be divided into three types: (1) Those belonging to colleges, universities, and other schools; (2) those belonging to learned societies or to other private bodies; and (3) those which are designated as public museums and which are wholly or in part supported by public funds. The collections should be arranged to suit the character of the institution. Thus, a college or university museum collection would require a somewhat different treatment from that in a public museum, as it would be used by an entirely different class of people. It is with the public museum that the present communication deals.

I have elsewhere said, following Mr. F. A. Bather of the British Museum, that the visitors to a public museum may be divided into three classes: (1) Investigators, (2) students from schools or colleges and amateur collectors, (3) the lay public. Mr. Bather has justly urged that the larger museums should divide their collections into three parts, corresponding to these three classes of visitors. It has seemed to me that these various classes could be grouped under two heads: (1) The technical investigator, including the university student, and (2) the lay public, including the amateur collector and the pupil from the public school.

From this point of view the collections should be separated into two classes: (1) Those which are exhibited, to be arranged for the lay public, and (2) those which are stored and form the study series, to be installed in such a manner as to be easy of access only to the special student or scientific investigator. The second class would consist of the large mass of the collections arranged taxonomically; the first class would consist of groups and specially selected synoptic and biologic series. In this class the enthusiastic museum curator

finds a vast field for his labors, the subjects, from which to select interesting and educational exhibits, being endless. Here the great truths of nature may be graphically told, and presentation may be made of such subjects as the adaptation of the organism to its environment in the way of organs of locomotion, of prehension, or of perception; also of offense and of defense; mimicry; protective adaptation either of form or color; the correlation of the feet and bills of birds in relation to their food; correlation of sex and age; molting; migration, and a hundred other topics of equal value and interest. The same may be done with groups representing evolution, geographic variation, and injurious and beneficial birds and insects. As I have already intimated, the modern museum is waking up, and the museum of the future will not only contain adequate exhibits of the subjects outlined above, but also many others of value to the public.

In the short time at my disposal I desire to review briefly a few examples of the educational methods of installation which have been attempted by the Chicago Academy of Sciences in the ornithological exhibits. These are illustrated by a number of photographs.

A word concerning cases may not be considered out of place. Much discussion has been heard of late in regard to iron *versus* wooden cases. Personally, we prefer the wooden case, and we fail to see where the iron case, except in its fire-proof quality, has any advantage over the wooden case, which is handsome and permits of variations of installation at little expense, not possible with the iron case. As to color, the writer prefers mahogany and next to this a very dark-finished oak, which is the finish used for the cases of the Chicago Academy of Sciences. For the interior of the bird cases, a soft bluish-gray has been selected, similar to that used in the mammal cases of the American Museum of Natural History. This has seemed to us to be the best possible background for birds, and it fades very little.

The subject of shelving has been definitely settled by the adoption of plate-glass shelves, with which a number of the bird cases are now equipped. Glass shelves allow the uniform diffusion of light throughout the case, besides being inconspicuous and attractive. These shelves are supported on brass rods, which extend from the door-posts to the back of the case. The main idea in the installation of the bird exhibit has been to make the case furniture as incon-

spicuous as possible. The attempt has been made, and we believe successfully, to bring the top shelf within a reasonable distance of the eyes of a visitor of ordinary height, and this shelf is placed five and one half feet above the floor. It is painful to see the unsuccessful efforts of visitors to some of our museums, as they endeavor to read a label printed in small type and placed seven or eight feet above the floor.

Some radical changes are being made in the ornithological exhibit of the Chicago Academy of Sciences. The exhibit consists of a representative collection of North American birds, intended to exemplify the nesting habits and environments, the geographical ranges at different seasons, and the sexual differences in coloration during the nesting season. All species are mounted in pairs, in the spring plumage, on natural branches. Wherever possible, Illinois species are shown with nest and eggs, or nest and young, with enough of the environment to bring out clearly the typical home of the bird.

The group idea contains the highest type of museum installation, for by means of it we are able to present not only the organism but also its environment to the notice of the visitor, who would in most instances be otherwise able to form but a vague conception of the homes of nature's children. What museum man has not been thrilled while viewing the magnificent groups in the American Museum of Natural History or in the Field Museum of Natural History. The elaborate and costly work in these institutions is, however, entirely beyond the reach of the majority of museums. But the idea may be used by all and it is the group idea which is after all of the most importance and not the elaboration of the productions. The museum of limited means may produce many useful groups at small expense. In the bird collection of the institution under discussion the group idea is being carried out to a large extent and we hope in the near future to be able to exhibit a notable proportion of the birds of North America with their nest, eggs, and young.

An innovation in this connection is a map of North America and a portion of South America showing the distribution of the species at different seasons by means of different colors on the map. Thus, the breeding range is green, the winter range red, and the migration range yellow. A map of this kind is exhibited with each species. Several supplementary maps are placed in every other case, explain-

ing the method of plotting the different areas of distribution and also showing routes of migration.

As an introduction to the general bird exhibit, a case of avian morphology has been prepared, calling specific attention to some of the more obvious forms and structures of different groups of birds. Some of the topics are: Types of bills; of tarsi; of feet; of wings; of tails; the structure and color patterns of feathers; colors of birds in relation to sex and in relation to season; molting and plumage cycles; size, color and form of eggs; variation in the number of eggs in a set, etc. This introductory collection will also include such topics as: Correlation of bills and feet in relation to food and to environment; form and modification of the skeleton; embryology, genealogy, and other features of this character.

The installation of this morphological series is possibly somewhat unique. The specimens illustrating each topic are placed on a large panel, 17 x 24 inches in size, made of No. 15 binder's board. This is covered with dead-black paper, which provides an effective background. These panels are of a uniform size and are interchangeable, allowing variations in the installation to be made at any time. Each panel is provided with descriptive labels, which sufficiently explain the idea to be emphasized.

In connection with the bird exhibit we desire to urge the value of local collections, which are too often entirely neglected and thought to be too insignificant for serious consideration. Each museum should aim to have the most complete and exhaustive collections of the local fauna and flora. The Chicago Academy of Sciences has built up several exhaustive collections of mollusks, insects, minerals, fossils, birds, and plants, illustrating the fauna and flora of Chicago and vicinity. Every species found in this area is exhibited and a large study series supplements the exhibit series. There is no reason why the smallest and poorest museum should not make very valuable local collections.

Before drawing this paper to a close we desire to say a word concerning descriptive labels. The speaker is an advocate of descriptive labels and plenty of them. There is danger, however, of overdoing the matter in providing heavy, verbose reading matter. A large number of short, terse labels, telling in few words some interesting fact, is better than a few very long ones. Descriptive labels should also be confined, in most cases, to a plain statement of

fact, leaving the theories to the text-books, to which attention should always be drawn.

That descriptive labels are read by a large proportion of the visitors to a museum has been proved to the speaker beyond a question. Many times he has seen visitors not only reading and comparing the labels with the specimens, but also copying the information in a notebook. The public is also quick to perceive the change from the old to the new educational method, and many people, business men particularly, have taken the trouble to call at the office and commend the museum for the betterment of its collections. There are some people, of course, who would not read a label if the letters were a foot high, but this class of visitors is fortunately small, and not to be considered in the matter.

In closing this paper we desire to emphasize the fact that the old ideas of taxonomic exhibition must be eventually discarded and their places taken by the new educational and instructive methods which seek to make each individual exhibit tell some phase of nature's story, and in the course of time our museums will become veritable storehouses of pleasurable instruction, and will be eagerly visited by all classes of people.

Mr. P. M. Rea.—"The Charleston Museum carries on popular bird work through the medium of a natural history society and supplements a seasonal exhibit of local birds by offering a guide to accompany field parties of from two to five members of the society and to assist in identifying the birds seen. It is recommended that parties assemble at the museum whenever possible and return from the field to the museum for a close examination of the species that have been observed in the open. I am very much interested in Mr. Baker's suggestion of making small groups to show the habits of the birds."

E. S. Morse.—"I desire to heartily concur in what Mr. Baker has said in the matter of labels. I agree with him that short labels printed in big letters, so that the student may at a glance know the name of the object that he is looking at and ascertain the essential facts which he wishes to know, are the best. The scientific name and the vulgar name should be given, with locality, followed by a comparatively brief paragraph of description, with reference possibly to some authority where fuller information may be obtained."

The Chair.—"Our experience at the American Museum of Natural History has been that the installation of small groups is not only of great educational value, but is in reality less expensive than the earlier methods of installation. I refer particularly to the groups which we have been recently installing with painted backgrounds and in which artistic accessories are used pretty freely. Groups of this sort must have a background painted by one who is more than a museum artist; good work is needed on the background. The accessories need not be very expensive, and the cost of the case is not considerable. By using the method we have resorted to we do away with mahogany frames and a lot of plate glass, and the bird groups, while giving the appearance of having cost a great deal of money, nevertheless in fact represent an economy in construction. An ordinary plate glass case framed in mahogany, which would occupy as large a space as the groups to which I refer, would cost in New York about five hundred dollars. A good background can be painted by an artist of skill for from two hundred to three hundred dollars. There is left then about two hundred dollars for the mounting of the birds and providing the necessary accessories. As an actual fact less than two hundred dollars has been required to build the groups, providing everything, after the services of the artist have been taken into account."

P. M. Rea.—"I would like to inquire how a small museum which is unable to regularly employ taxidermists may secure various groups of birds and mammals. Would it be possible to secure the services of a competent man, not permanently engaged on the staff of one of our museums, to undertake work of this sort occasionally, as it may be called for?"

The Chair.—"Answering Mr. Rea's question, I think it is quite possible. One of the best taxidermists in America (I think Mr. Akeley will bear me out in saying so), is available at any time for such work. I refer to Mr. Denslow, who is not connected with any institution and is willing to undertake commissions. There are several men who are doing creditable work upon mammals who can be engaged at any time. In the matter of accessories, I know that there are one or two persons who are capable of doing excellent work whose services may be secured."

At this point the Chair announced that an invitation from the Art Institute of Chicago to meet in Chicago one year hence had been

received, and he requested any others who might desire to present communications in reference to the matter to present them now, in order that they might be read by the Secretary and perhaps referred to the Council with instructions to bring them before the Association prior to adjournment. The invitation from the Art Institute of Chicago, which was read by the Secretary, is as follows:

"I write on behalf of the Trustees of the Art Institute of Chicago to invite the American Association of Museums to hold its meeting in 1908 in Chicago at the Art Institute. We would be honored by the acceptance of this invitation, and will do all that we can to promote the entertainment of the members.

"W. M. R. FRENCH, *Director*.

Mr. W. M. R. French.—"May I say a word of explanation? I hardly expected that this matter would be brought before the Association at this moment. I know that if the Association should decide to come to Chicago the Field Museum of Natural History, of which Mr. Skiff is the director, would certainly insist upon taking part in showing hospitality to the Association. Mr. Skiff intimated as much to me by telephone a day or two ago, and also intimated that he thought it was settled that the Association would come to Chicago in 1908. I hope that it will, and for the Art Institute I will say, that, if the honor of entertaining the Association is divided between us and the Field Museum, we will do well with our half."

F. C. Baker.—"If the Association decides to come to Chicago I wish to say that the Chicago Academy of Sciences will also wish to have its part in entertaining the body. I would like to suggest, in referring to the remarks of the last speaker, that the Art Institute and the Field Museum will not have the privilege of the "halves," but simply of the *thirds*. The Chicago Academy of Sciences will have to have its share in the matter of entertaining the Association."

The Chair.—"You have heard the invitation presented by Mr. French. The matter will remain in the hands of the Council and will be brought forward again for formal action by the Association."

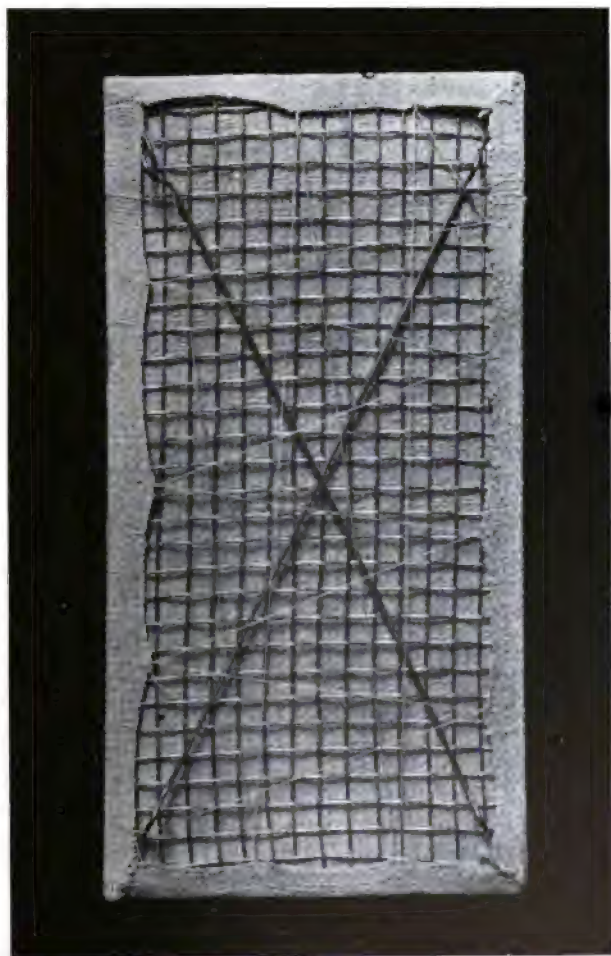
The reading of papers was resumed.

Dr. E. S. Morse, director of the Peabody Academy of Science, read a paper upon "A New Method of Mounting Ethnological Objects," illustrating the same by examples of the mounting devices employed by him.

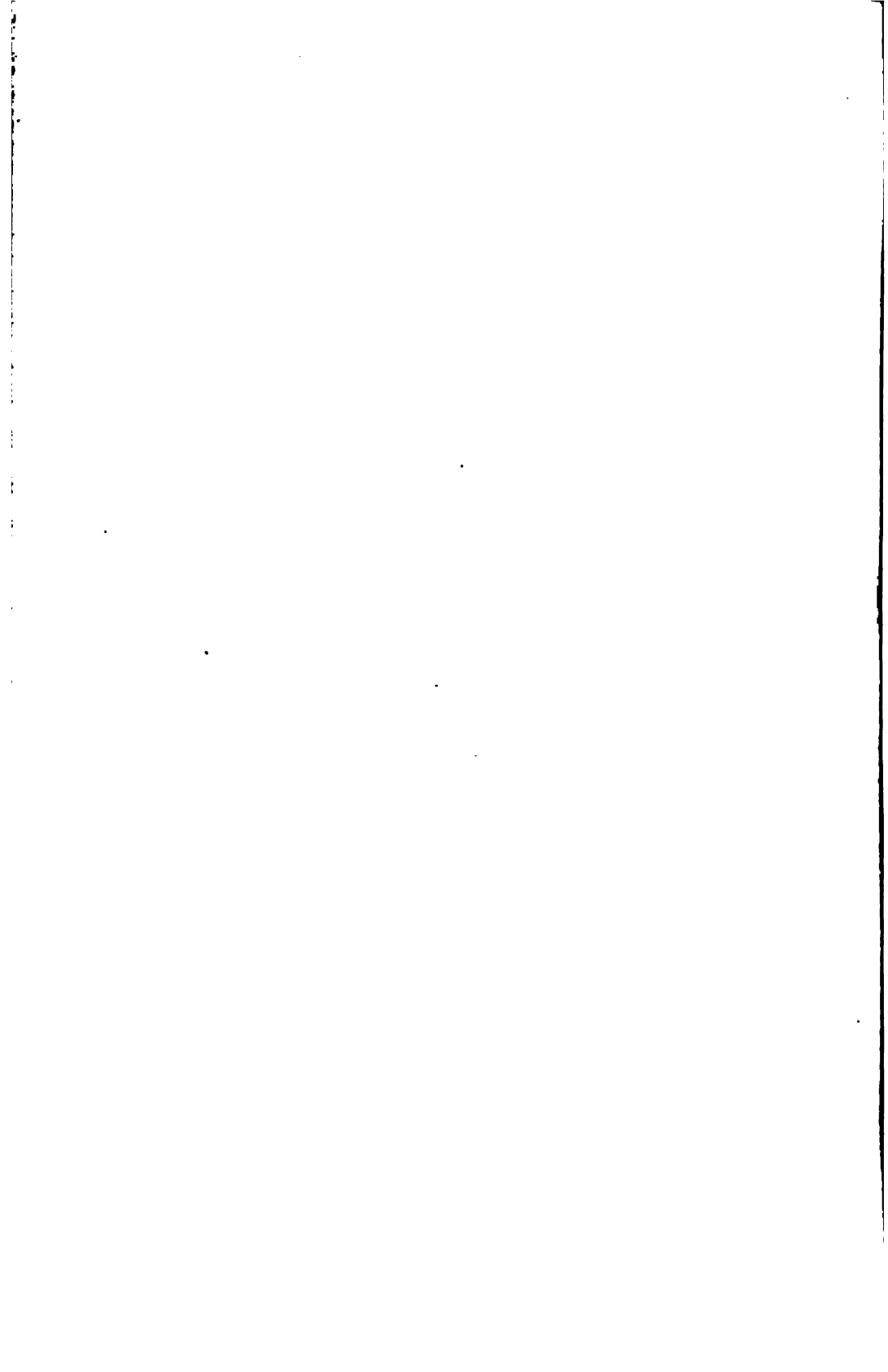
A NEW METHOD OF MOUNTING ETHNOLOGICAL OBJECTS

It may be rash for me to entitle my communication a new method of mounting objects for museum display, as doubtless the idea has occurred to others, though I have never seen it put in practice. When I took charge of the Peabody Museum, in Salem, all the specimens were arranged on horizontal shelves, as in so many other museums. While this would do for stuffed birds, mammals, etc., standing in single rows, or alcoholic specimens in jars, it certainly would not do for small objects, particularly if they were lying in trays, or if there were a number of rows, one behind the other. I began with the corals, wiring them on wooden tablets and hanging these to a larger tablet, two of which filled a vertical case. These were inclined to the wall or stood vertical as desired. In arranging the ethnological collections the objects were placed in their proper position on the large case-tablet and then secured by wiring, or simply hung on tacks driven into the tablet. In many ways this was unsatisfactory, though in every instance the object was fully displayed. In rearranging the oriental collections in a new exhibition hall recently given by Dr. Charles G. Weld, the idea occurred to me to use square sheets of coarse wire netting covered with Russia linen upon which the objects of a group, like combs, necklaces, sword-guards, etc., might be sewed. A friend suggested the wire cake cooler as an improvement and it proved to be so, for an experiment with a few of these answered every purpose. I then drew the dimensions of various sizes and had several hundred made. Two brads driven into the wooden tablet enables one to hang the wire tablet upon them in any position, that is, higher or lower, to the right or left, within certain limits.

The linen covers the front of the tablet and is turned over on the edges, the coarse wire netting being exposed on the back, the meshes permitting it to be hung on these brads or wire nails above mentioned. In sewing on the linen the threads go across the tablet on the back, and original labels, letters, or memoranda can be slipped in behind the threads. One generic label is sufficient for each tablet, and minor labels are fastened near each object as desired. Anyone wishing to examine a group of objects simply removes the wire tablet from the big case-tablet. The two case-tablets may be

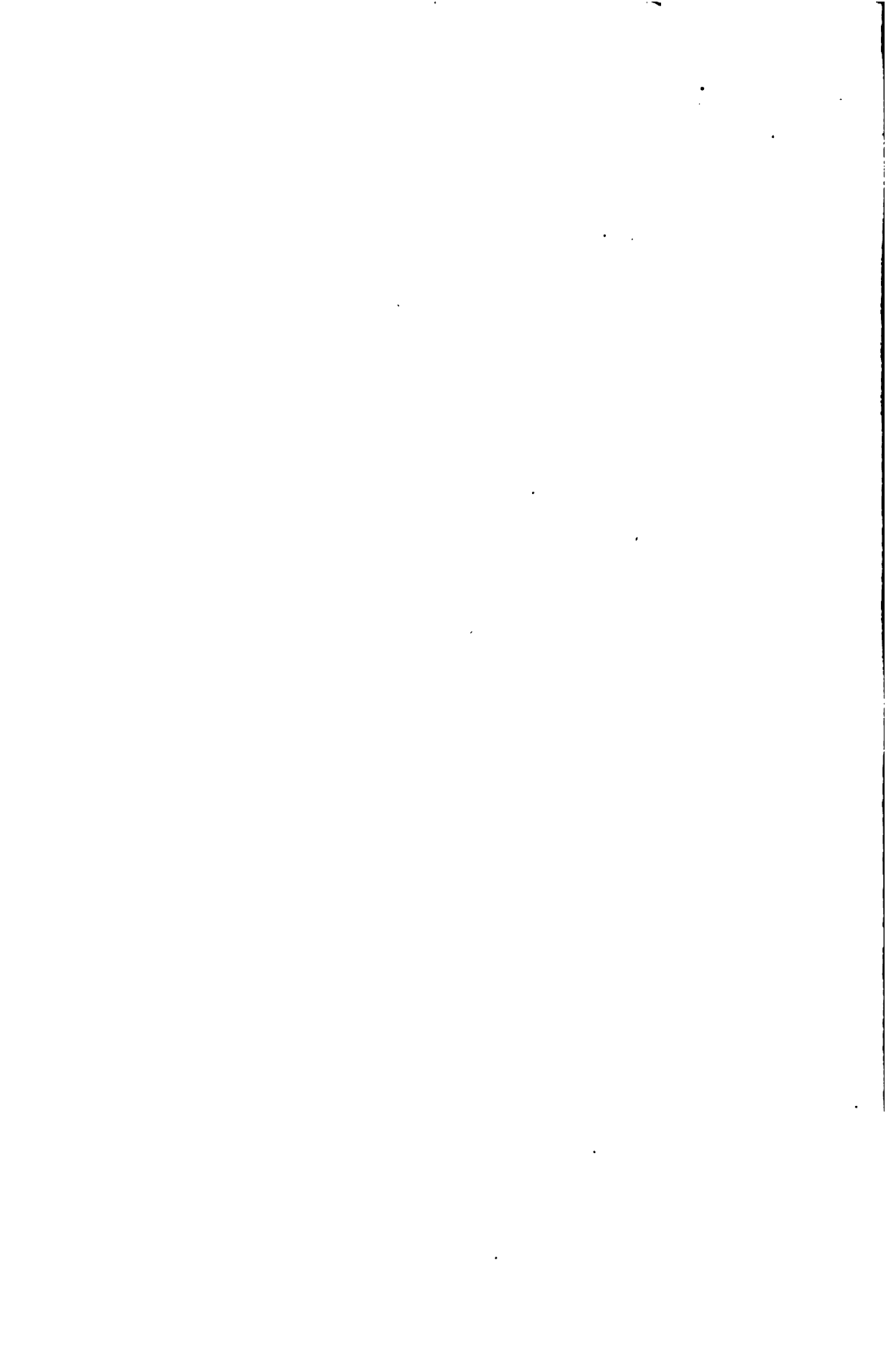


BACK OF WIRE CAKE-COOLER COVERED WITH RUSSIA LINEN USED BY PROF. E. S. MORSE
AS MOUNT FOR SMALL OBJECTS





CABINET SHOWING MANNER OF UTILIZING THE WIRE-CLOTH MOUNTS DEvised
BY PROFESSOR EDWARD S. MORSE



joined by cleats behind so that the entire case shows one continuous tablet. By this arrangement all the objects are displayed on a vertical surface.

The swords and spears rest on wooden pegs which are driven into holes bored for the purpose and every object can be immediately removed from the cases. The cases stand at right angles to the walls, and on adjacent square pillars which support the gallery an oak tablet is affixed upon which is painted in large black letters the general contents of the cases, such as musical instruments, clothing, weapons, toys and games, etc. This label satisfies possibly ninety out of a hundred casual visitors. A smaller group label neatly glazed and bordered with black—a passe partout, in fact—indicates the general contents of each wooden tablet, such as lamps and candlesticks, food vessels, tea utensils, etc. These are printed in large square type on manila paper and are very distinct. These labels satisfy most of the remaining hundred. In still smaller full-faced type, on paper the color of the cloth-covered wire tablets, a generic label is affixed, such as shoes, sword-guards, dolls, etc. The specific labels are written on small manila cards for the individual objects on the wire tablet.

It has been the testimony of hundreds of visitors that the collections are examined with the least possible fatigue. That is all.

The Chair.—"I hope I may be pardoned if I make one or two remarks of a personal character. Do you realize, ladies and gentlemen, that Professor Morse is at the head of the oldest museum in this country at the present time, and that he has been actively, industriously, efficiently, and successfully busy with the work of museums for a larger number of years than any other person present? Nevertheless at all of these meetings he is the youngest man on hand and has the most ideas to present. He concluded his remarks by saying 'That is all'; we know better than that. He has submitted a great many suggestions already, and will submit many more which will prove that what he has said is not all."

Mr. P. M. Rea.—"My interest is aroused by the statement which has just been made by the Chair, that Dr. Morse represents the oldest museum in this country. I am inclined to question whether that statement is absolutely correct. In going over the records of the Charleston Museum I find that it traces its beginnings back to

the later years of the eighteenth century. Last spring I discovered a list of specimens presented to the Charleston Museum between the years 1798 and 1808, many of which things are still in our possession. If I am not mistaken this antedates by one year the museum at Salem, which was founded, I believe, in 1799."

E. S. Morse.—"I would like to inquire whether this museum is open to the public, whether it has been since its beginning a public museum?"

P. M. Rea.—"It has not been through its entire history open at all times to the general public. Few institutions in the South were thus open in the earlier days. The museum was started under the auspices of the Charleston Library, and was then transferred to the Library and Philosophical Society. It was on the same footing as the library, and was maintained by subscription, including among those who were its supporters many of the best and most prominent men of the city of Charleston. Anyone who desired to do so could get admission to the museum. We have objects at present in our possession which were placed in our custody as far back as 1798. For the last twenty-five years the museum has been open on Saturdays, at least, free to the public."

E. S. Morse.—"I am delighted to hear what I have heard in reference to the Charleston Museum. It is a matter of interest to me to know that apparently this institution has slightly anticipated in its activities the institution which I have the honor to represent."

A paper upon "The Advantages of Installation in Swinging Frames" was read by Director W. M. R. French, Director of the Art Institute of Chicago, who presented a number of photographs in illustration of the paper.

INSTALLATION IN SWINGING FRAMES

My attention has been called anew to the advantages of swinging frames for museum installation by a recent experience with a collection of laces. The Art Institute of Chicago, as is well known, is in the very heart of a great soft-coal-burning city. Every object left exposed is soon covered with a deposit of the products of combustion. Ordinary show-cases delay, but do not prevent the process. In our ordinary exhibition cases such delicate fabrics as

white laces become intolerably soiled and dingy in two or three years. It happened that thirteen or fourteen years ago we placed a small collection of laces in close swinging frames, in which they have been on continuous exhibition ever since; and to our surprise they are still entirely clean, apparently as white as when they were put in. This has been a kind of test case, and has led to the installation of our whole collection of laces and small fabrics in this manner. An extraordinary feature of the case is that no great precautions have been taken to make the frames air-proof or dust-proof, although it would be easy to do so.

Our frames are simple, strong, ebonized frames, with glasses facing both ways, between which are placed, back to back, the cardboards bearing the specimens. Glasses and specimens together are slipped in at the top, and the aperture of $\frac{5}{16}$ to $\frac{3}{8}$ of an inch, is closed by a tongued strip simply dropped in. The photographs sufficiently explain the construction. Apparently the specimens lie so close to the glass that no dust or deposit gets to them. It would be very easy to paste a strip of paper or cloth round the edges of the glasses before slipping them in, in *passe-partout* fashion, thus hermetically sealing them, but this we have not found it necessary to do. It would make rearrangement a little more difficult. These frames are provided each with two substantial hinges, screwed upon one edge of the frame, and are hung in straight rows from three to seven inches apart upon hard wood ebonized strips upon the walls. In some cases we hang them upon the wooden walls without strips. We use frames of various sizes, and in the case of the larger sizes, since the weight and strain are considerable, the wall-strips are fastened to the brick walls by split bolts. Such an installation of large frames could not be made upon a light wall. Of course the frames may be hung round a central column. We have one such construction, made in Paris, bearing six frames on each of eight sides, ninety-six glasses in all.

We have in use four sizes, viz: 28 x 22 in. (size of glass), for photographs, drawings, and small textiles; 24 x 18 in., for series of small drawings; 42 x 26 in., for larger textiles and laces; 34 x 30 in., for the Arundel prints (colored lithographs).

There is no reason why much larger sizes, at least in the vertical dimension, may not be used, although there would be more difficulty in putting the glasses in.

As to cost, I have a bid for the 28 x 22 inch size, with glasses, at present of about \$6.00 a frame, to which must be added \$1.50 for hinges—\$7.50 in all. This is rather expensive for the amount of gallery space occupied, but not for the material provided for. The principal additional cost for larger sizes will be in the glass.

The advantages in this mode of installation, besides cleanness, of which I have already spoken, are compactness, ease of consultation, protection from light, and convenience of reclassification.

1. *Compactness.*—It is easy to see that the saving in space is immense as compared with upright cases upon the wall or in recesses. In point of fact, a collection that occupied a whole gallery with us is now compressed into a single wall of 15 or 20 feet long. It is easy to figure it. Suppose an exhibition room of 30 feet square, exclusive of doors. Small objects could scarcely be well seen below the picture line, nor more than 5 feet above it. $30 \times 4 \times 5$ gives 600 square feet of exhibition space. Our larger frames are about $2 \times 3\frac{1}{2}$ feet, or 7 feet area—14 feet, counting both sides. 600 divided by 14 gives 43. 43 frames at 3 inches apart would occupy a linear wall space of 14 feet 4 inches, or less than $\frac{1}{3}$ of the room. If it be said that objects could be exhibited much lower and higher than I assume, certainly the hanging space could not be more than doubled, and the exhibit would still be compressed into one fourth the space. The closer the frames are hung to each other the more they will project into the room when not in use. But frames $1\frac{1}{2}$ inches thick and 30 inches wide placed at 3 inches from center to center, will not project more than 16 inches.

2. *Ease of Consultation.*—There is no method of exhibition so convenient or so attractive to visitors. People like to turn the frames, and the student can put the object into the best light for examination. It is easier to run through such a set of frames, and to find a given specimen, than it is to turn the pages of a large book.

3. The specimens are most of the time in shadow, that is, protected from strong light, because the frames lie together, and in the case of certain textiles and other objects this is an important recommendation.

4. *Convenience of Reclassification.*—It is obvious that such a series is almost as susceptible of rearrangement as a card catalogue. All you have to do is to lift the frames off their hinges, put them



SWINGING FRAMES AS UTILIZED AT THE ART INSTITUTE OF CHICAGO TO DISPLAY LACES, ETC.

in such order as you choose, and replace them. Transpositions and interpolations may be made at will. When the objects are once installed and labelled in this manner the curator's troubles are over. The collection is disposed of as a finality. This I think will meet the acceptance of our busy museum officials.

I will not go into the adaptability of this method of installation to various objects, but I think it is obvious that it may be extended with advantage to small specimens of many kinds, such as coins, scarabees, small reliefs, and no doubt to many natural history and botany specimens, though I have used it thus far only for coins.

Dr. W J McGee.—"There is one point in this connection which seems to me worthy of even greater emphasis than Mr. French has given to it, and one which is not always as carefully considered in connection with museum exhibits as it ought to be. I refer to the freedom from soiling of specimens which is secured by mounting them in swinging frames. This is due to the comparatively small amount of space included within the frames, coupled with the elasticity of material secured in this form of installation. It is important to recognize in all installations that a circulation necessarily must take place between the interior and exterior of our cases. Atmospheric pressure is varying constantly. If cases are made absolutely air-tight it is necessary that they should be strong enough to resist the variation and pressure from within and without, or be sufficiently elastic to permit of adjustment to the pressure. In these thin flat cases or wall frames the form is such that they are able to adjust themselves to varying air-pressures. The objects placed in them remain comparatively clean. The principle is one which is worthy of careful consideration in connection with museum cases in general."

Dr. W. J. Holland.—"We have employed the method of installation in swinging frames in our museum, and you will notice that in one of our halls there is an exhibit of sections of our native woods thus installed. We have in view the employment of this method for the installation of botanical specimens. An estimate has recently been handed in to me by the gentleman in charge of the section of botany in the museum in which he states that specimens of all the flowering plants which occur in this county, numbering nearly a thousand species, can be conveniently displayed with proper labels

in four of these cases built of a sufficiently large size and provided with rotary leaves. While it may be objected that such pieces of furniture are large and occupy a considerable space, nevertheless I believe that a vast economy in installation is effected by their use in spite of their size.

"Touching upon the point mentioned by Dr. McGee, I desire to say that absolute immunity from the invasion of dust and soot can be obtained in the case of these flat mounts by the device known to dealers in pictures as *passe-partout*. I suppose you all understand what is meant by this. The objects to be exhibited are simply placed between the glasses which are to contain them, and then the glasses are bound on the edges by tape or paper, so that the contents are sealed between the glasses. The glasses are then put into frames. Communication with the small space between the glasses and the outside air is prevented in this way, and the amount of air included between the glasses is so small that varying atmospheric pressure does not lead to any inhalation of dust or soot.

"Referring to the elasticity of materials and to cases of much larger size, I wish to say that in large constructions we are confronted with serious difficulties. On the third floor of this Museum you will see an old Egyptian boat placed in a case which is 38 feet long, 8 feet wide, and 7 feet high. This case is subject to very great changes due not merely to barometrical fluctuations but variations in temperature. Our aim was to make this case air-tight, so as to keep out the soot and dust of Pittsburgh, but had it been built absolutely air-tight when the summer season comes with its rise in temperature the case would undoubtedly burst. We have provided a very simple method of overcoming the difficulty. We have arranged for two openings into the case about an inch in diameter, communicating with the outside air through a long brass tube. This tube, which is concealed except at the point where it opens into the case and where it furnishes exit to the outer atmosphere, is filled with antiseptic cotton, not packed in tightly, but quite loosely, and at the point nearest to the inner opening slightly moistened with glycerine. The case breathes, so to speak, through these two openings. Particles of soot and dust as they are drawn in are caught in the cotton, which from time to time is withdrawn and burned and replaced by fresh material. I do not know that this device, which is the result in this particular case of my own planning is entirely new. I have a latent

idea that somewhere or other in some museum, possibly on the other side of the Atlantic, I have seen something of this sort resorted to, but I really could not tell you where it is."

F. A. Lucas.—"I think the device to which our attention has been called is a case of 'parallel evolution.' The same sort of a device is used in England, Germany, and in some of our own institutions in America. In our own museum we have some large cases planned by the architects. In order to secure proper ventilation we were compelled to make holes in the bottom of the cases about a foot square which we have filled with cotton batting. I cannot conceive that for so large a case as that to which the doctor has called our attention a small tube would be sufficient. I should think about a foot square of ventilating surface should be provided in such a case.

"Recurring to the subject brought to our attention by Professor French, I wish to say that the method of installation in swinging frames is available for a very large class of objects. It is used in the Metropolitan Museum of Art for water-color paintings. I propose to use it in the Brooklyn Museum for every class of flat objects capable of thus being installed."

O. C. Farrington.—"The idea of filtering the air which necessarily passes in and out of cases has been used in Chicago for a number of years. The idea has been evolved independently. A number of museum men have developed it in various ways."

The Chair.—"Mr. Howe, of the New York Botanical Garden, is with us. May I ask him whether they have not used these cases at the New York Botanical Gardens? It seems to me that I have seen them there."

Mr. Howe.—"We are using them extensively."

The Chair.—"I should like personally to know if there is any manufacturer or dealer in swinging frames who makes a business of supplying them."

Mr. French.—"I do not know of any dealer who makes a business of supplying them. The first two that we put into use in Chicago were made by a firm in Paris and contained originally a collection of Braun's autotype prints. We bought them in 1890. We have since made our own. The French cases are of course quite expensive."

A Member.—"Could not such swinging frames be made of aluminium? That material would be lighter."

Dr. W. J. Holland.—"I fear that to have them made out of aluminium would involve mechanical difficulties. Aluminium does not lend itself well to the making of tight joints in frames except by riveting, and this might prove expensive. We have never experimented with aluminium in this connection, but I think wood is liable to prove after all the best material."

A paper was presented by Director Henry L. Ward of the Milwaukee Public Museum upon "The Exhibition of Large Groups in Museums." Mr. Ward prefaced the reading of his paper by remarking that it had been originally prepared to be read at the New York meeting, and stated that Mr. Akeley, who had had as extensive experience in this matter as any man living, would be perhaps better prepared than himself to present a paper upon this subject. Nevertheless he would read it in the hope that it might present some points worthy of consideration and discussion.

THE EXHIBITION OF LARGE GROUPS

The increasing tendency of museums to engage in the work of popular education is probably in no way more apparent in their exhibition halls than in the multiplication of pictorial groups of human beings, other animals, and even of inorganic specimens. There is no doubt that a good group interests and instructs the average visitor vastly more than do exhibits of ungrouped specimens, because they come the nearest to showing things as they actually occur in nature. They are realistic, and tell their own story to a much greater extent than do individual specimens.

Practically all museums are giving much attention to this work, but it is probable that no museum man is entirely satisfied with the results which he obtains. There are always some undesirable features that can not be eliminated and which detract from the finished group to the annoyance of the maker. Bad lighting, artificiality in appearance, and incongruous surroundings are probably the chief of these.

The perfect group should have correct artistic placement of its component elements and should carry out the idea meant to be portrayed so that the beholder may not be reminded that he is only looking at a counterfeit.

It must be properly lighted, so that obscuring and annoying reflections are not given off from the glass. And it should so be placed that other and oftentimes incongruous objects are not in sight at the same time. If one is looking at a snow scene of musk oxen it certainly is not conducive to its proper appreciation to have the sight go through and beyond the case or to one side of it and see at the same time a summer group of American bison. This latter point, inharmoniousness of surroundings, is a universal fault to which I feel that insufficient attention has been given; perhaps for the reason that buildings are not planned to obviate it but rather in a way to make it the most difficult to meet.

In the Public Museum of the city of Milwaukee the glass reflection has been a very serious matter, naturally most annoying in the hall of mammals, where are the largest cases. This hall runs north and south, is about 250 x 55 feet in size and being on the ground floor is mostly lighted by east and west windows. Much of the upper light that would naturally come from the rather tall windows has been sacrificed to architectural effect. There are several groups in square cases each side of which are single plates of glass eleven feet square. These were built before I took charge of the museum and, although in recently built cases I have increased the glass length up to sixteen feet, I have decreased the height to about nine feet.

The conditions of light are such, however, that in these large groups I have not dared to use backgrounds on account of the amount of light that they would intercept and which would rob other parts of the hall where it is needed. The posing of animals in these four-sided cases is unsatisfactory. Four fronts and no backs can only be obtained by compromises which leave none as effective as they could be made were they the only ones, and the omission of backgrounds greatly curtails the local color that is attempted in the accessories.

The inharmoniousness of surroundings is marked when one can look clear through a case and see people and other unrelated groups beyond, but perhaps most noticeable of all defects is that of strong reflections from the glass under certain light conditions. I have unsuccessfully attempted to overcome this by the introduction of holophane globes containing electric lights placed in the upper corners of one of these cases, but this has made no material improvement and they are conspicuous, distracting, and incongruous.

With certain smaller cases I have been more successful. These have been provided with scenic backgrounds and are illuminated by incandescent lights, having parabolic reflectors, placed back of the cornice. This has been carried farther in an anthropological group designed and executed by F. B. Melville in which practically all external light is excluded by the solid walls and roof of the case and the view of its contents limited to a window of moderate dimensions; while the lighting is all by hidden incandescent lamps. The painted background is coved at the corners and carried over the top so as to show no lines of joining. This group is placed by itself in a lobby where there is nothing to distract the attention. The only objection I can find to this style of installation is that it is a trifle theatrical in effect. This, however, I believe to be largely due to the fact that it is surrounded by daylight.

For some years I have talked to various museum men with whom I have come in contact of the advisability of making large group cases with single panes of glass and depending entirely upon interior illumination. My plan would be to have no windows in a hall given to this purpose; to build a case front parallel to a side wall at such a distance from it as might be decided upon, divide the enclosed space into suitable lengths by partitions, cove the corners so that the sides and back should be a segment of an ellipse upon which should be displayed the background and cut a comparatively small window through the front of each division and have this so screened as to cut off the view at the top of the background or else cove the latter into the ceiling. The lighting would be entirely by concealed internal electric lights which in case of the exhibition of nocturnal animals could readily be modified to conform to the requirements while various lesser modifications of illumination as required by different localities could be made.

The hall or passageway outside of the cases would either not be lit except from the reflected light from the groups or illuminated with softened light if this were found desirable.

By this method of exhibition we would avoid all interference by reflection from the glass, would save much space by the elimination of transverse aisles between cases and would, I think, preserve the specimens much longer from fading.

There would also be eliminated the distraction of having many separate exhibits in view at the same time.

In opposition to this plan might be urged the theatrical effect previously mentioned; but upon consideration I am inclined to think that this is merely a matter of subconscious association and that in a hall entirely devoted to this style of installation such a thought would occur to comparatively few visitors and would quickly disappear from the minds of the others.

Besides the advantages already urged for this scheme there is a farther one of great comparative economy. A case which normally would cost a thousand dollars might be constructed in this manner for probably somewhere between one and two hundred dollars. Most of the construction could be of expanded metal and adamant, insuring protection against fire.

Within a few years I hope to have the planning of a material addition to the Milwaukee museum and not wishing to make any mistake I would be very grateful to any one who would make a trial of the scheme that I have outlined or for any criticisms upon it.

F. C. Baker.—"The idea of Mr. Ward has occurred to all of us. It seems to me, after having visited the different aquaria, that they have hit upon the right plan. Why cannot we have our exhibition rooms built in the style of an aquarium, the interior being dark and the groups being exhibited as they are exhibited at aquaria? Many of you saw last year the preparations which were being made for groups in the American Museum. You noticed how excellent the scheme was. It does away with the reflection of the glass, which we know is very bad. I think we ought to seriously consider utilizing this plan. I propose to do so."

F. A. Lucas.—"I trust the members of the Association will kindly pardon me for talking so often and taking part so frequently in the discussions, but this matter of groups has interested me for years, and while Professor Morse is one of the oldest Museum men present, yet I think possibly in the length of time of continuous service I may compare favorably with him. There is, it seems to me, another phase of the group question, as many of the members are aware. The propositions laid down by Mr. Ward have been successfully solved in the American Museum; they have exactly the conditions which he mentions. But there is another side to the question. The question is, will you endeavor to show the animals, or the conditions under which they occur? I do not think that you can

make a museum of groups entirely. Even the American Museum would be unable to provide the room and money to carry out such a scheme. In many respects it seems to me best that the background should be subordinate to the animals unless you wish to make the conditions under which the animals occur the most prominent feature of your exhibit. With due deference to Dr. Bumpus I wish to say that it is not easy to get good taxidermists, good landscape artists, and good preparators for the making of accessories. I have found it an extremely difficult matter. On the other hand many excellent small groups can be made by an ordinary taxidermist with but ordinary accessories at comparatively moderate cost. I do not believe that the cost even of a very large case begins to compare with the cost of the landscape and accessory work in a large group. When you take into consideration the time required, the wages which must be paid—for good workmen do not labor for low wages—you cannot expect to secure fine results very cheaply. I am afraid that first-class groups are not within the reach of ordinary museums. There is not a group in our own museum which I would not wish in some respects improved upon. We have been forced to prepare several large groups in our museum representing such objects as seals and buffaloes. In the case of such groups you imagine a small section to be cut out of a territory occupied by these animals, and you may in this way get a good idea of them when your attention is not distracted from the animals to the background. As far back as 1882 I made the suggestion that backgrounds should be entirely subordinated to the animals. Of course where you are endeavoring to show the character of the habitat it is different. I hope Dr. Bumpus will pardon me for apparently differing from him."

H. C. Bumpus.—"I will pardon Mr. Lucas anything."

H. L. Ward.—"I did not intend to create the impression that in my judgment groups should be used to the exclusion of individual specimens. I believe thoroughly in using the same thing many times in order to bring out different features. But I feel that in the long run the relation of the animal to its environment, giving an idea of how the thing exists in nature and what its associations are, is important, and that this can be done much better when you have pictorial backgrounds than in any other way. Take sea lions, for example. The closeness with which these animals are associated in a group would suggest their gregarious habits, and I think that a

great many people, because they are used to seeing them brought together in museums in this way will realize that they are gregarious. But if there be a background showing a herd painted upon it, the observer is impressed by the fact of their gregariousness in a way that four or five specimens put into a group cannot possibly cause him to be. As far as the accessories are concerned, they cost about as much in one case as in the other. Three big pieces of plate glass and mahogany to hold them, and a well-painted background, rapidly run into money."

O. C. Farrington.—"I think that a good deal may be accomplished by placing mirrors at each end of the cases, so that the view is only obtained in front, as Professor Ward has suggested. I have tried this method, and hope to employ it to a considerable extent. I do not find the effect especially theatrical. It insures a shading off to natural effects, which is helpful."

F. S. Webster.—"In connection with the subject of groups, whether with background or without, it has occurred to me that a series of photographs may well be exhibited and introduced for the purpose of supplementary instruction. Take, for instance, a seal rookery; a few specimens may be shown in the group, and then there should be framed a photograph showing the seals upon the rookery."

F. A. Lucas.—"Under a seal group in our museum we have a photograph seven feet long showing a rookery half a mile long with two thousand seals upon it. This photograph conveys a far better idea of the facts than any background which could be painted for less than fifteen hundred dollars."

Dr. W. J. Holland.—"The construction of groups is a matter in considering which financial resources must be taken into account. The creation of artistic and beautiful groups, gratifying to the eye, and thoroughly realistic and instructive, is in spite of all that has been said a somewhat expensive undertaking. The first cost of the material which is employed may be very small, but the cost of the artistic labor, which is involved in the production of a group, is often very great. We have, in this museum, several groups of which we think very highly. One of these was made by Mr. Webster, who has just taken his seat. It represents a setter dog, the ancestor of many of the finest dogs of his race in this country, in the act of flushing a covey of quails. The old rail fence, the sumach bushes, and the briars,

all suggest things familiar to every one, but I happen to know that these sumach bushes cost Mr. Webster three or four months of work. The getting of those fence rails involved a considerable expenditure of time and also of money. The group is not inexpensive, though it represents a familiar scene. I think, as it is mounted, it cost the museum in the neighborhood of two thousand dollars. If an attempt is made to illustrate the facts of natural history on the scale that is represented by this group the result will be a very large outlay of money, and there are very few museums in a position to engage in such an undertaking. I highly approve of groups, but they should be used judiciously, and the director of any museum should consider with great care how much space he has at his command, what are the groups which in a well-ordered exhibit of the truths of nature he wishes to have made in order to illustrate these truths. Groups may be multiplied indefinitely, but the question for the director to decide is what particular truths of natural history are so important that they ought to be emphasized by the construction of an expensive group. If we allow ourselves to be led and controlled by our friends, the preparators, who are largely guided by artistic impulses, we may be involved in outlays which will indeed produce things artistic, but which it will not be our wish to preserve for all time."

George A. Dorsey.—"I wished to make a remark of that sort myself. It seems to me that the question is after all 'Do these groups pay? Do they advance science sufficiently to justify the money invested in them?' I am not pretending to answer that question, but it seems to me to be a serious question and one which every director of a museum should take into consideration.

"It is proper to bear in mind that these groups are not produced simply for scientific purposes. Museums exist for the entertainment of the people as well as for their instruction. The expenditure of money upon groups is for entertainment, and good results are achieved thereby. A fine group such as that to which Dr. Holland has alluded, showing the quails in their natural environment, if painted by an artist, might be sold for fifteen or twenty thousand dollars, but the painting would not afford as much entertainment as this group, or numerous other groups in the American Museum and kindred institutions. The justification of groups is to be found in the entertainment which they provide, and I appeal for the entertainment of visitors as well as for their instruction."

W J McGee.—"It seems to me that the issue is well raised by the gentlemen who have last spoken. The issue is between scientific research on the one hand and education on the other. I think the prime function of a modern museum is education. The way in which science is best advanced is through research in the fields of nature and not in the museum. In order, however, that we may have naturalists forever with us and have an appreciation of the outside world we must educate the growing minds. The function of a great public museum is education, the implanting in the minds of children and laymen of interpretative nuclei, interpretations of nature as it is represented, perhaps pictorially, but calculated to create an appreciation of nature in such a manner that the mind is stimulated and set to work. The purpose of a museum is to stimulate the minds of children so as to open intellectual vistas for all time to come."

Robert C. Hall.—"I am a layman, but as a member of the Association I am glad to have heard these definitions of the purposes of a museum. I have, however, an abiding and growing conviction that a museum has still another function. Groups may be for entertainment, and museums for education, but it seems to me that one of the great functions of a museum is the preservation and exhibition of historical objects which we wish to preserve in fireproof buildings frequented by and open to the public. I do not believe that a museum is a college, but a store-house of the past, preserving the past for those who are living today and for those who shall live in the future. It seems to me that this is one of the grand ends of a museum."

Benjamin Ives Gilman.—"The ideas so interestingly brought out in the remarks that have been made by those who have just spoken may be found expressed in Professor Flower's 'Essays on Museums.' Professor Flower went so far as to say that he thought the first purpose of museums of science was the preservation of the data of science; the second purpose was education. But I do not know that he regards this order as absolutely essential. Museums have these two objects, to preserve the data of science and to impart to the people at large pleasure and instruction."

The Chair.—"I am so glad to have those who are interested in the fine arts express an interest in the discussion. They have hitherto preserved a discreet silence."

W. J. Holland.—"This discussion as it has proceeded has reminded me of the story of the blind Hindus who were asked what an elephant is like. One of them, who had carefully felt his leg, said that the elephant resembled the trunk of a tree; another, who had handled his trunk, declared that he resembled a serpent; and a third one, who had felt his tail, declared that the elephant was like a rope. Museums may be viewed from different angles and may be judged to exist for one or the other purpose according to the attitude of the observer. Those of us, however, who are most familiar with museums and their work, realize that they combine within themselves a number of purposes. One end, as has been observed, is the preservation of the data of science, so that the student of the present and the future may be helped in his scientific work. It is necessary to provide in every well-arranged museum for abundant storage space and for laboratories and for literature, so that the things which have been written about and that which has been said in reference to them may be brought together. A museum is also a place in which instruction is imparted to the masses and in which they receive instruction in a pleasurable form, being entertained even while they learn. These, then, are the ends of a museum: The preservation of the records of science, the advancement of scientific research, the instruction and entertainment of the masses.

"The subject before us, however, Mr. President, is the use of large groups. I have taken part in the discussion simply for the purpose of pointing out that there is a limit beyond which museums must not and cannot well go in attempting to teach the truths of nature by means of large groups."

The Chair.—"We have been interested in observing that our colleague, Dr. Holland, has begun a group of dinosaurs. Possibly if he would announce the cost of the preparation and installation of this group and compare it with the cost of the installation of a group of whales and the ethnological groups on the third floor of this museum, the zoölogist and the ethnologist might remark upon the extravagance displayed by the paleontologist. But I ought not perhaps to have interrupted."

J. E. Talmage.—"It seems to me that there is no difference of opinion as to the value of groups of the kind under discussion if they can be obtained of suitable quality. Remark has been made on many occasions as to the chasm which exists between those who are

concerned in the development of museums of art and museums of science. From what has been said about the necessary features of these groups it seems to me that we have in them a medium for bringing the artist and the naturalist together. In the preparation of such groups there is involved a union of effort between artists and scientific workers. The production of elaborate groups is only rightly undertaken by museums which have a large endowment. Where such groups cannot be undertaken because of the lack of financial resources some of the ends achieved by them may be secured by bringing together and associating objects which are naturally related. Some groups have appealed to me but very slightly as artistic presentations of the subjects which they are intended to represent. In many cases I would have preferred to the group well-mounted single specimens of the animals which they represent. Really artistic groups constructed with strict reference to the truths of natural environment are no doubt highly instructive. Touching upon what has been said concerning the functions of a museum, I am tempted to say that to provide the right kind of entertainment is to minister to the cause of education."

The next paper presented for discussion was upon "Museum Records," and was read by Mr. Paul M. Rea, director of the Charleston Museum, Charleston, S. C.

MUSEUM RECORDS

The system of museum records here described was devised to meet the conditions presented in a reorganization of the Charleston Museum, but since the problems of organization are so nearly similar in the smaller museums, at least, the methods which are proving effective in one instance may be helpful in others.

The conditions referred to were the necessity for a revision of extensive collections in zoölogy, geology, anthropology, botany, and fine arts—the accumulations of more than a century—with the help of untrained assistants and the aid of specialists in only two or three departments. Data, scattered on loose labels and in old memorandum books, had to be associated with their specimens before these could be handled or any active work inaugurated.

It was obviously impossible to commit the museum to any system of records which would not have to be modified as work progressed and departmental curators were added to the staff. Flexibility, therefore, was the imperative requirement of any system that might be adopted in this case, as it should be in that of any growing institution.

An excellent paper on "Cataloguing Museum Specimens" has recently been published by Prof. L. B. Walton¹ in which will be found an admirable discussion of the data to be recorded in natural history collections. Inasmuch as these data are practically identical with those already adopted in the Charleston Museum it is unnecessary to discuss them in detail here. In the method of arranging and recording this information, however, the system here set forth is believed to possess the advantage of greater flexibility, economy of space, and, in the case of the accession record, the important advantage of more permanent form.

The divisions of the catalogue are four, three of which—(a) accession record, (b) specimen record, (c) finding list—correspond with the divisions advocated by Walton, and a fourth, (d) list of sources, has been found expedient to meet a constantly recurring demand for special information.

(a) ACCESSION RECORD

Every lot of material, whatever its nature and whether consisting of one or more packages, is given an accession number when received at the museum. These numbers are consecutive and the number assigned to any accession is conspicuously marked upon each package in the lot. The business history, etc., of the accession is then recorded under this number in an "Accession Book." For this purpose a 500-page record-ruled book, such as is carried in stock by all stationers, has been adopted. The right-hand page is used for the original entries, the opposite page being reserved for subsequent annotations. The accession number is written in the margin and beside this is entered all the information available concerning the accession, *rubber stamps* with permanent black ink being used for each item of the record (*e. g.*, contents, locality, purchased from, etc.) in place of the printed form commonly used elsewhere.

The use of rubber stamps in place of printed columns was deter-

¹*American Naturalist*, Vol. 41, No. 482 (February, 1907), pp. 77-96.

mined upon in the interests of flexibility and economy of space. It is desirable to provide for the entry of a wide variety of items for different kinds of material, and any printed form including all of these wastes much space. Rubber stamps are cheap, and by the *selection* of those needed for any particular entry the record is much condensed and is of practically the same form and size as the library card advocated by Walton. Stamps for additional items may be easily provided at any time and, incidentally, the stock form of book is much cheaper than the specially ruled book.

Since the accession catalogue is essentially a continuous record of the growth of the museum, it should be impossible to remove, disarrange, or add to this record, without leaving evidence of such changes. A bound volume is therefore considered preferable to the card system advocated by Walton. The use of rubber stamps gives to the book all the advantages claimed for the card system, except the "removal of useless records or addition of new matter." This exception, far from being an advantage, is, in reality, a positive evil in connection with an accession record.

(b) SPECIMEN RECORD

• Whenever the specimens in any accession are unpacked and worked up, each is given a specimen number, and this number is either painted on the specimen, as in the case of minerals and rocks, or driven into the wooden mounts with steel figures, or in some way permanently associated with the specimen. All the specimens in the museum are numbered in one consecutive series, but blocks of 1,000 numbers are assigned to each department. Thus, 1,001–2,000, 4,001–6,000, 9,001–10,000, may represent all the birds in the museum, while the intervening thousands have been assigned to other departments. When the numbers assigned to any department have been used, it receives the next vacant thousand.

The specimen numbers of all the specimens in any accession are added to the accession record and each is then entered upon a card which is to become a part of the specimen catalogue. The specimen card receives also the accession number of the lot to which the specimen, or group of specimens, in question, belonged, and to this number reference may be made for the business history of the specimen. The scientific history of the specimen, together with other information concerning it, is entered in concise form upon the

specimen card, rubber stamps again being used to denote each item of the record. These cards are filed in numerical order in drawers containing 1,000 cards each. The drawers are provided with locked rods, the key to which is kept in the office of either the director or the departmental curator.

The specimen record is not, like the accession record, a complete consecutive record of the growth of the museum, but is filled in the order in which the specimens themselves are worked up and assigned to their place in the museum. The card system is therefore adopted in place of the bound volume because of its greater convenience. It is as necessary to guard against displacement or loss of data as in the accession catalogue, but this can be very well done by the device of the locked rod. The use of rubber stamps for items of entry gives the same flexibility and economy of space as in the accession record and the 3 x 5 card has been found large enough for this purpose. The specimen record is not intended to duplicate entries of the accession record, except that *Locality* should always be stated even though already entered on the accession book.

(c) FINDING LIST

As a matter of convenience to determine what specimens are in the museum and their location, it is desirable to make a finding list part of the system of records. The regular 3 x 5 inch card is used, bearing the scientific(?) name of the specimen, its location in the museum and its specimen and accession numbers.

Several specimens of one species may be listed on one card if desired. The location mark should be written in pencil to facilitate correction whenever specimens are moved. Local specimens may be represented by cards of a special color, type specimens by another color, and still other classes may be indicated in a similar way if desired.

The arrangement of the finding list may be alphabetical, but a systematic arrangement is probably preferable, as showing at a glance the amount and nature of material in any group. Unless this list is to be used by specialists only, a minute classification should be avoided.

(d) LIST OF SOURCES

The writer has had many inquiries concerning material acquired in past years from various persons, and finds it of convenience to

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Other details have been added only where it has been necessary to mark points of difference between the Charleston system and that outlined by Walton, or where they were needed to make the plan of operation clear, or show its feasibility.

It is the only system, in the writer's knowledge, which is flexible enough to accommodate itself automatically to any conditions which may occur in the future, including the creation of new departments and the demands of specialists in various groups.

Upon the conclusion of the reading of the paper by Mr. Rea the Committee on Program announced the program for the evening session, and the Association adjourned in order that the members might have an opportunity to visit the parks and residential portions of the city of Pittsburgh, for a tour through which a number of the Trustees of the Institute and their friends had kindly placed their automobiles at the service of the visiting guests.

Evening

The Association reconvened at 8 P. M. President H. C. Bumpus in the chair.

The first paper presented was by Mr. F. A. Lucas upon

THE EVOLUTION OF MUSEUMS

A discussion of the objects of museums may well be preceded by a brief sketch of their origin and evolution, and, if some of my remarks sound trite to our older members, they may be of interest to our visitors and younger members. For the character of museums has changed so greatly during the past half-century that those who know these institutions only as they exist today may not realize how widely they differ from what they were even twenty-five years ago. Any dictionary will tell you that museum comes from muse and that from meaning a grove sacred to the muses, it has come to mean an institution devoted to the arts and sciences personified by these divinities. But, as the muses in turn are believed to have evolved from the nymphs, which, dwelling in fountains and forests, are the embodiment of the very spirit of nature itself, so museums, from being mere recorders of scientific facts, have come to devote their energies largely to displaying the denizens of field and forest in such

manner that the varied life of distant regions may be set before the dweller in towns.

We are usually referred to the museum at Alexandria for the beginnings of natural history museums, but this was hardly a museum in the modern sense, while the germs of such institutions are to be found far earlier than that. About 325 B. C. Alexander the Great brought with him from India and elsewhere specimens for the use of Aristotle, the father of natural history, and earlier still Hanno, the Carthaginian, on his voyage down the coast of Africa, secured the skins of Gorillas, which on his return were placed in the Temple of Astarte, perhaps the first record of specimens being placed on exhibition. And it may not be amiss to note that a portion of this same temple, though probably of much later date than the time of Hanno, is now in the National Museum at Washington. While a variety of causes have contributed to the formation of museums of natural history, the curiosity of man—nowadays we term it his thirst for knowledge—lies at the very foundation of our museums of science, for they may be said to have originated in the gathering of specimens from distant lands to gratify the desires of men of more or less scientific attainments. And if you will name over the largest museums of the world you will find that they are those of great commercial nations and that they bear an almost direct relation to the extent of the commerce of their respective countries.

As a side issue may be noted the specimens of new and quaint animals that were to be seen at some of the coffee-houses of the seventeenth century. These are worth at least passing mention, for two or three of Artedi's species of fishes were based on such specimens, and they are evidences of the general interest in foreign animals.

Owing to the activity of England in colonizing North America, the United States, that was to be, played a most important part in stimulating the growth of museums, the plants and animals brought from the new world swelling many a private collection that in time became part of some public museum. It is only necessary to recall the number of American plants and animals that bear scientific names given by Linnæus to realize the amount of collecting being carried on in America during the eighteenth century, for two thirds of the reptiles and one third of the birds and mammals described in the famous twelfth edition of the "*Systema Naturæ*" were American.

The collections of scientific societies were, to a great extent, the successors of the cabinets of private individuals, but while these have done a vast amount of valuable scientific work, and some have practically developed into public museums, they have been the last to feel the effect of the ways of progress, to adapt themselves to new conditions, and adopt new ideas. In fact I think we are justified in saying that scientific societies have had less influence in the founding of museums than have the efforts of private individuals.

For a long time museums existed only for men of wealth and men of science, the idea of benefiting the general public being a secondary consideration, if it was considered at all. Sad to say, the first museums to be thrown open to the public at large were founded less with an idea of instructing the visitor than of making money out of his natural desire to see new and strange objects. The most famous of these was the Leverian Museum, London, brought together by Sir Ashton Lever, which contained specimens of such importance that when it was broken up and came under the auctioneer's hammer, representatives of the great museums of Europe were present at the sale.¹ The more familiar of these institutions in the United States were Barnum's and the Boston Museum, both of which, like their European prototypes, sought to add to their interest and revenue by having a theatre as an adjunct. In the case of the Boston Museum the theatre outgrew the museum and came to be the home of one of the most celebrated stock companies in the United States. These institutions were antedated by Peale's Museum, which was also more scientific in its character, and from 1822 to 1828 was installed in Independence Hall, Philadelphia, and later moved to Baltimore, where it was unfortunately destroyed by fire.

Many of these early institutions contained really valuable specimens, but they also contained a large proportion of objects that now find a place by themselves in the well-known dime museums, which in a way are their direct, if degenerate, successors.

Peale's mastodon, the Warren mastodon, and the Missouriium of Koch were thus exhibited, and were to be seen for a consideration, although eventually one found its way to the British Museum, and one has recently come to the American Museum of Natural History.

¹A most interesting account of this, and similar institutions, by Prof. Alfred Newton, is given in the Proceedings of the Museum Association of Great Britain for 1891, page 28, "Notes on Some Old Museums."

While such things as these were not so few in number as to be exceptional to the general rule, yet a vast number of objects were of that class rightly called curiosities, a comprehensive term that embraces a vast and miscellaneous category of objects, including the familiar and ever-present petrified potato and four-legged chicken. If there is anything that a museum has no use and no place for, it is the mere curiosity, but, as John Minto says in a recent article, "It will take years to do away with the idea of museums still entertained by many that they are storehouses of curiosities."

Thus the cabinet of the mere gatherer of curiosities, the collections of men of science, and the museum open to the visitor upon the payment of a fee, have each and all played their part and paved the way to the real public museum. Expositions, numerous though they have been, have done little to change the character of natural history museums, although they have led to the establishment of some. Their influence, however, has been felt by the public, who have been made acquainted with their work, and especially of that of our own National Museum.

The public museum, that is, the museum free to the public and owned or operated in whole or in part by government, either state or municipal, may be said to date from the opening of the British Museum in 1759, although admission to this great institution was at first by ticket and limited to thirty persons in one day. This may be termed the entering point of the wedge, but the idea of making the museum interesting to the public and of any general educational value was yet to come. Our own National Museum was formally created by Act of Congress as late as 1876, although thirty years earlier the Government possessed collections which were in the custody of the Smithsonian Institution.

The following extract from a Guide to "The General Contents of the British Museum," published by Messrs. Dodsley in 1762, will be of interest to those who only know museums as they exist today:

"Some of my readers may be ignorant of the Manner of applying to see the Museum; for their Information I shall add, that fifteen Persons are allowed to view it in one Company; the Time allotted is two Hours; and when any Number not exceeding fifteen are inclined to see it, they must send a List of their Christian and Surnames, Additions, and Places of Abode, to the Porter's Lodge, in order to their being entered in the Book; in a few Days the respective

Tickets will be made out, specifying the Day and Hour in which they are to come, which on being sent for, are delivered. If by any Accident some of the Parties are prevented from coming, it is proper they send their Tickets back to the Lodge, as no body can be admitted with it but themselves. It is to be remarked, that the fewer Names there are in a List, the sooner they are likely to be admitted to see it."

But as the British Museum was perhaps the first to open its doors free, if not freely, to the public, so it was one of the first at least of the larger institutions to consider the question of making its collections interesting to the ordinary visitor.

Here I will confess that I have been surprised to find that such men as Owen and Günther, who might well be considered as caring nothing for the educational or esthetic side of the museum problem, were among those to advocate making museums of general interest. Perhaps these are among the many instances where museum officers have been wrongly judged and blamed then, as they are today, for the existence of conditions for which they are in no wise responsible.

The British Museum was, so far as I can ascertain, the first to break away from old traditions and attempt to exhibit animals amid their natural surroundings. It is entirely probable that the example of private individuals contributed largely to this movement and that the little case of birds with a paper rock and tow tree may be the germ from which have grown such groups. In fact the change in the British Museum is said to have been directly due to the private museum formed by E. T. Booth, who is claimed to have been the first to exhibit "not merely a collection of stuffed birds but rather a true representation of bird life and haunts."

The importance of the step taken by the British Museum can only be appreciated by those who saw the British Museum in its old and cramped quarters, with every inch of space occupied, specimens even hung against the ceiling, and cases crowded with serried ranks of stuffed animals, many of which might appropriately have been relegated to the care of the department of archeology.

To our British brethren also belongs the credit, not only of being the first to see the educational possibilities of museums, but of having availed themselves of the opportunities offered to a greater extent than any other nation; for there are today in England more museums with popular or educational features than in any other country.

Development was slow at first, and those who today have the

pleasure of uttering those dangerous words, "I told you so," can well remember the cold water poured upon their timid suggestions that any change in the then existing order of things was desirable, and the disfavor with which their modest attempts at improvement were received.

"Spread-eagle styles of mounting, artificial rocks and flowers, etc., are entirely out of place in a collection of any scientific pretensions or designed for popular instruction. Birds look best on the whole in uniform rows, assorted according to size . . . , and set on the plainest stands." So wrote Dr. Coues in 1874, or little more than thirty years ago, and he probably voiced the opinion held by the majority of museum officers of that date. But times have changed. The monotonous rows of birds and mammals are largely relegated to the study series, and their places taken by groups that counterfeit, or at least suggest, nature, and display not merely animals, but show where they live and what they do. Further than this the effort is made to show the methods by which nature attains her ends; variation, mimicry, adaptation to surroundings, the effects of environments, these, and many others, are among the many things museums seek to teach. To anticipate a little, it may be said that here is where a museum has, and should have, a very direct relation to schools by providing good examples of what to the pupil are apt to be rather vague ideas. Mimicry, subspecies, influence of environment, are all discussed in text-books, but their meaning is much better gathered from objects that illustrate these facts. Formerly museums displayed objects merely, now they must be the exponents of ideas, and this changed condition of affairs has been brought about almost within the last twenty-five years, certainly within the last half-century.

This change in the scope of a museum has led to, or been accompanied by, a change in the character of labels, for as the character of museum specimens changed, so also did the labels accompanying them. Formerly a collection was looked upon as well labelled if every other specimen bore a name and locality, the scientific name being placed first as a survival of the time when museums were for scientific men alone, just as women put bows on their dresses as a survival of the time when they were tied together instead of being pinned. Now a label is supposed to tell something about the object it accompanies, the common name comes first and the scientific name modestly follows. Furthermore, to supplement the labels a new

class of museum literature has come into existence; we have hand-books written in a more or less popular vein, and many museums issue a regular journal in the shape of a bulletin to let the public know what is being done and to furnish information about the institution, its collections, and its work. In addition to all this we have courses of lectures relating to subjects which the collections illustrate, and these lectures vary from formal addresses to large audiences to talks or demonstrations given to small parties in the exhibition halls.

Thus museums have passed through several distinct stages; at first they were indiscriminate gatherings of "curios," objects of art, and specimens of natural history. Then, by the inevitable process of segregation, natural history came to have a place by itself, the collections of scientific societies developed as storehouses of material, mainly for the use of the specialist and the public museums derived from these were largely dryly scientific in their character.

The next step was for the scientific museum to borrow a page from its predecessor and discarding its mere curios adopt the idea of making collections attractive and interesting to the public. Now we are in the educational stage where the needs of the public are considered as much as those of the student, and the object of the collections, so far as their display is concerned, is to interest and instruct, interest being placed first, because if you cannot arouse the interest of visitors you cannot instruct them.

It has come to be recognized that a collection should not be made hap-hazard, but should have some definite purpose, and the specimens of which it is composed be parts of a connected and consistent whole.

To many this is no doubt a truism, but as some of our visitors may not realize this, I trust the remark may be pardonable.

One reason why a collector of stamps is usually regarded lightly is that he generally has no end in view other than to obtain as many different stamps as possible. The stamps have no definite meaning in themselves, it is what they suggest, not what they show, that is of value. To the stamp collector a surcharged stamp is more valuable than a plain stamp, and one that has been printed upside-down is vastly enhanced in value. But it is a fact that a stamp was surcharged for some definite purpose and marks some historical event of more or less importance that ought to give it value. As for the stamp printed upside-down it is absolutely devoid of value or interest save for the collector, since it illustrates no fact other than that accidents are bound to occur.

It must not be supposed that the naturalist, and particularly the amateur, does not have his fads and fancies, for he is as liable to attacks of this disease as anyone else. The great auk illustrates this point very well. It is not so rare as dozens of other birds, it illustrates no important fact in nature better than a score or more of other birds, and yet mounted specimens, and especially eggs, bring higher prices than any other bird or egg. Why? Simply because the great auk is a fad, and there are just enough specimens to stimulate interest—and bids—when the bird or its eggs come up for sale.

Museums of history are exceptions to the general rule that objects should show something, and so to some extent are museums of ethnology, for these differ from other museums in the fact that their value does not lie so much in the character of the objects displayed as in the associations connected with them. In a way museums of history are museums of ethnology, being records of the culture of a given time and race.

A large portion of the "relics" of great men, considered by themselves would find their way to the junk shop, or ash heap; their real value lies in the suggestions of other times and great events they conjure up. Let me illustrate this as regards ethnology. In the Hall of Ethnology in the Museum of the Brooklyn Institute are ten small pieces of weathered wood, roughly carved to represent the human form. Intrinsically they are of small value, even for kindling, but when we learn that these are ten of the original thirteen war gods of the Old Zuñis, that they were venerated for centuries, that the priests alone might enter their sacred presence, and that it was death for the stranger to despoil their shrine, and they become of great interest. In this case it is not what the objects are, but what they stand for.

A collection of specimens does not make a museum any more than a collection of paints and brushes makes an artist. It is not what we have, but what we do with what we have that produces results, and the true value of a museum does not lie in its specimens alone, but in what it does or what is done with them. It would be possible to have a collection of specimens costing thousands of dollars the intrinsic educational value of which would be practically nothing.

The educational value of any collection depends not on its size, nor the rarity of its specimens, but on what it teaches. Nor does the value of a specimen depend merely on the fact that people wish to see it, for I regret to say that there is an attraction of repulsion, a

morbid curiosity, that makes many, if not most of us, wish to see things in themselves unpleasant. There are people who collect bits of rope with which various criminals have been hung, and I remember in my early days gazing with much interest upon some such objects (probably taken from a convenient clothes line) in Barnum's old museum.

So it would be possible to make an exhibition of great popular interest, not one object of which should be publicly exhibited. The two objects most frequently asked for in the National Museum were Guiteau's skeleton and the boots made of human skin.

So much for what a museum should, or should not be. But as theories are one thing, and facts another, it must be remembered that a museum is rarely the outcome of a definite plan, but the resultant of many forces, a compromise between what the director would like to do and what the time and funds at his disposal and the limitations imposed upon him by the architect permit him to do. There are, moreover, two things essential in building up a museum, money and time, and the latter is much more necessary than one might be led to suppose. Given plenty of money—and no museum man has ever been known to admit that he has had a plenty—it is often difficult to bring together the material necessary to carry out well-defined schemes.

And here I will rest the case for the museum; we are not doing for the public what we would like to do, nor what we hope to do, but as fast as possible we shall increase the educational side of our collections. There are more difficulties in the way than the average visitor probably dreams of, and not the least of these are what may be termed purely physical obstacles, the lack of rooms, the unfitness of buildings and cases, the difficulty or impossibility of procuring certain specimens. And as Martha was cumbered with much serving so the museum superintendent is hampered with much housekeeping. There are, indeed, many discouragements in museum work, and there are many times when a conscientious man, knowing the cost of what may appear to the public a comparatively small piece of work, cannot avoid asking himself the questions, 'does it all pay?—does the end achieved warrant the outlay of time, labor, and money it has cost?—what does it all amount to anyway?' And the answer to the questions we leave to time and to the public.

When Mr. Lucas had concluded the reading of his paper the Chair introduced Dr. Benjamin Ives Gilman, of the Museum of Fine Arts, Boston, who presented a paper upon "The Triple Aim of Museums of Fine Arts."

THE TRIPLE AIM OF MUSEUMS OF FINE ART AND ITS ILLUSTRATION IN THE SEAL OF THE MUSEUM OF FINE ARTS, BOSTON

My points are four: (1) To state the aim of fine art; (2) to give the reason why art has this aim; (3) to determine the main purposes subserved by museums of fine art and their order of precedence; (4) to call attention to the purposes of the Boston Museum as indicated in its seal.

1. What is the aim of fine art?

There are two radically different ways in which we may be said to know anything. "*Je connais*" means "I know"; "*Je sais*," "I know"; but the first means acquaintance, the second information, two very different things. To be acquainted with anything means to have experience of it; to know about it means only that this thing has been an object of our thought. Romeo's exclamation, "He jests at scars who never felt a wound," brings out this distinction between acquaintance and information. The topic of love had occupied his comrade's thought, more perhaps than his own, but it was his fate alone to experience the passion. We say, "Practice what you preach," meaning again that to talk about a matter is a very different affair from living it through. "Let not him that girdeth on his harness boast himself as he that putteth it off." Why? Because the former boasts about an object of thought, the latter about a subject of experience.

This difference admitted, just wherein does it consist? In this, that to be acquainted with a thing is to know the thing itself; to be informed about it is to know its relations to other things. Benvolio and Mercutio knew love in all its bearings, in its causes, its signs, its results, but they had not known the thing itself that springs from these sources, has these manifestations, and bears these fruits. There is no more fundamental distinction known to man than that between

things and the relations of things, and it is this deep difference that obtains between acquaintance and information. To be acquainted with a thing is to have enter one's consciousness the sensations, the thoughts, the feelings, into which that thing can be analyzed. The event called the battle of Waterloo consisted, among a myriad other matters, of the flash of guns, the sight of reddened soil, and of bodies of men in movement, the volleys, the cries, the efforts, the terrors, the rage, the despair, the unimaginable torture, the dumb approach of death; all the infinite abyss of experiences that passed in scores of thousands of souls a hundred years ago on the Belgian plain. To be informed about a thing is to turn one's thoughts upon a complex of experiences of which it is composed. To know about Waterloo is to learn its date, its theatre, its progress, its causes and results, its place in the lives of the participants and of the nations they represented; in short, to envelop it in any web the thoughts are capable of weaving with reference to that past event.

This distinction being admitted and being clear, my first point is that the aim of art is to impart knowledge in one of these senses and not in the other. The aim of the artist is that we should become acquainted with his product, not that we should be informed about it. The thing itself, and not its bearings, is what the artist is interested in and wishes us also to admire. Though we master the whole literature of Balzac criticism, yet if we never read one of his works, we shall have wholly missed his aim in writing them. Hence it is that the artist is called ποιητής, the creator of things. For what is a thing, and what is it to create? A thing philosophically analyzed is a bundle of experiences, a certain combination of sensations, thoughts and feelings, and to create is to bring into being the permanent possibility of such a complex. This is what the artist does. The aim of his creation is that others after him should in contact with his work see, think, and feel with his eyes, brain, and heart. A work of fine art is, therefore, a record of experience, made in order to acquaint others with his experience. It is a language made to communicate this experience to whom it may concern. Thus, as Albrecht Dürer wrote, in artistic production, "The secret treasure of the heart, gathered (by observation) is made manifest through the work and new creation which a man shapes in his heart in the form of a thing." (On Human Proportion, Book III, Excursus.)

It is true that any bundle of experience, any thing, can be reasoned

about, as well as perceived. We can turn our minds from the thing itself—for instance, a work of art—to its bearings upon other things. We may not only go through an experience, we can also weave a limitless web of thought about it! But from the point of view of the artist any such web of thought is a by-product of his work. The immediate purpose of language, and of fine art as one form of it, is to communicate something, not to elicit a response. The spectator's perception of a creator's achievement, his apprehension of all that it was made to be,—this it is, that completes an act of creation. Mozart said of musical composition, "When all is done, and I can review the whole at a glance from beginning to end, that is a revel" ("Da ist ein Schmaus"). So the Book of Genesis records the fulfilment of the creative purpose when after each day's work "God saw that it was good."

2. Yet a world or a work of art surely must exist for something, we may say. This is my second point. Why does art pursue the aim it does? This aim, we may admit, is to perpetuate a certain experience, to put it permanently in the power of others to live over again certain moments of the artist's life. But what for? What is the use to the many of this vicarious existence through a few gifted people? Shall we say to broaden our minds? The question then recurs, what is the use of broadening our minds? Not to lose time in thinking up further answers, let us call this use, this purpose, whatever it is, C. Again the question recurs,—what is the use of C? Let us say D. Well, what is the use of D? Let us say E. Evidently there is no end to this chase, until we reach something valuable in itself and not solely valuable through an ulterior use. Either nothing is worth while, the whole universe vanity, life not worth living, or some things are desirable for their own sake. Such things certainly exist. Virtue is one, unless the common phrase, "Virtue is its own reward," is an empty claim. Happiness, another, for who asks what use there is in being happy.

We return, then, to our starting point with a new question. May not the experience which an artist is impelled to record in a work of fine art be a valuable thing in itself? May it not be that the motive which gives rise to what we call the fine arts is the fact that certain of our experiences, which are capable of outward embodiment, are too precious in themselves to lose?

This is indeed an opinion common among leaders of the world's

thought. Aristotle was the first western thinker to differentiate clearly between fine art, as that whose product is valuable in itself, and useful art as that whose product is valuable through some result external to itself. Laotze in China two centuries before, had spoken of beauty as "*the usefulness of the useless.*" The conception reappears in Kant's definition of beauty as "*Zweckmässigkeit ohne Zweck*" (Purposiveness without purpose). Emerson repeats it in his "Beauty is its own excuse for being."

True that works of fine art have value through their fruits, as well as in themselves. They are useful, both without the maker's intention and with it, as well as beautiful. Their friendship forms spirit and style, and most are expressly designed to subserve ends apart from that of conveying their content—the painting, to fill a space upon the court-room wall and rest the eyes and refresh the minds of the throng below—the sculptured group to honor and protect the dust it covers. Moreover, the intended use of a work of art may be, and often is, the chief purpose of the maker, rather than its beauty. Like Demosthenes, aiming rather at a march against Philip, than at impressive persuasion, he may be artisan, the purveyor of means, before he is artist, the creator of ends. Still further, the idea of the intended use of a thing may become to us part and parcel of the thing itself: the ship may be gallant, the weapon cruel. Beautiful as a useless or noxious creation may be, another at once salutary and more beautiful is conceivable, and, as we may trust, actual. But it is the idea only of utility that may thus contribute to beauty; the reality remains wholly apart from it. Artistic value and practical value differ as the nature of a thing from its effect; beauty entering into the work, utility flowing from it.

These two conclusions, as to the aim of fine art and the reason for this aim, may thus be summed up:

The Aim.—To acquaint others with the product of our own fancy (not to develop information about this product).

The Reason.—Because this acquaintance is itself worth cultivating (not because it brings us ulterior advantages).

Here we have two distinctions:

1. Between acquaintance with, and information about, works of art.
2. Between the good they are (exemplified in their beauty); and the good they do (their utility).

Fine art is concerned with the first member of each of these alternatives. The creative artist aims that beholders should be *acquainted* with a fancy whose *inherent worth* has inspired its perpetuation.

3. Upon this understanding of the aim of fine art and the reason for its pursuit, what are the main purposes of a museum of fine art and what the order of their precedence?

Returning to the two alternatives just stated, the second and extra-artistic member of each still remains to be considered. We may, *first*, not only acquaint ourselves with works of fine art as the artist intends, but inform ourselves about them; and, *second*, not only enjoy their beauty, which is also his intention, but profit by their utility. Hence out of these two distinctions there emerge finally three possible attitudes toward a work of fine art:

(a) The artistic; the attitude of the seeker after appreciative acquaintance with the work, in accordance with the artist's intention.

(b) The scientific; the attitude of the seeker after information about the work, independent of the artist's intention.

(b') The practical; the attitude of the seeker after results from the work, independent of the artist's intention.

A word to justify and ensure a passive interpretation of the term "artistic." Derived directly from "artist," it signifies properly the attitude of creative labor. Applied by extension to that of a spectator of the result, the term signifies that the impression received is that intended. So used the word acts to keep alive the ancient error, already condemned in the phrase, "*ars est celare artem*," that the machinery of its construction is part of the content of a work of fine art. The term "aesthetic" is exempt from this danger, referring solely to acquaintance (*αἰσθάνεσθαι*, to perceive by the senses)—as scientific (*scire*, to know about) in information; and practical (*πράσσειν*, to bring about) to results. But unhappily the suggestion of frivolity now attaching to the term "aesthetic" and its derivatives forbids their popular use, and with this warning to the reader, the term "artistic" is here employed to mean not "creative" but "appreciative."

The influence of any permanent public exhibition of fine art, any art museum as it is called, is exerted upon persons taking each of the three attitudes just named. They are represented respectively by three clearly distinguished, but not mutually exclusive, classes of visitors.

The artistic attitude is that of the whole public. The one aim common to every visitor is that of *appreciative acquaintance* (with the objects shown).

The scientific attitude is that of students of history. Their aim is *information* (about the objects shown).

The practical attitude is that of craftsmen (comprising artists, artisans, and art students). Their aim is *guidance* (by the objects shown).

A word of comment on these aims. Both historical and professional study may aid appreciative acquaintance, although neither is indispensable, still less suffices to ensure it. Both sharpen observation, but five teachers—the eyes, life, travel, the historic sense, and art itself—are more helpful than science; while skill, if it divert the mind from achievement to method, may even be a handicap. Again: no others than technical students take the utilitarian point of view independently; for the spiritual uses of works of art are realized through appreciative acquaintance with them, and their material uses are obsolete in the artificial environment of a museum, where the sword no longer defends, nor the cup refreshes.

The question of precedence among these purposes admits of but one answer. In a treasury of creative genius the creative aim is paramount. A museum of fine art should seek first the spread of that appreciative acquaintance, which is the goal of fine art. Subject to this prior duty it should administer its possessions both for purposes of historical study and purposes of professional utility, both as scientific specimens and as technical aids.

It is the people at large whose contemplative attitude toward a work of fine art fulfills more or less adequately the creative aim of the artist, for whom a museum of fine art primarily exists. The archeologist and the craftsman, whose attitudes of investigation and emulation respond to no intention on the artist's part, have a secondary, although indefeasible, standing therein.

4. *The Purposes of the Boston Museum as Indicated in its Seal.*—Thus far an academic discussion of the purposes of an art museum: what they are, and what their relative importance.

Now, actually and in particular, does the Museum of Fine Arts in Boston, recognize these three purposes and in this order of importance—the promotion of artistic appreciation first, and of scientific study and technical training second?

No real person can answer this question. Only the legal person, the body corporate, made responsible for the institution by the Legislature of Massachusetts. An individual can only ask whether the Trustees of the Boston Museum have ever adopted expressions of their purposes, which admit of such an interpretation. This question may be answered in the affirmative, subject always to correction by the Trustees themselves.

The seal of our museum, adopted 1871, bears as its central device three interlaced rings, one above containing the word "art," and two below containing the words "industry" and "education."

That this device signifies the same three purposes in the same order of precedence as determined by the foregoing analysis—art first, craftsmanship and learning second—is an inference from the following statement of the aims of the museum contained in a report adopted by the Trustees in 1883:

"We must assume (as the foundation of it¹) that the Museum is to be what its name expresses, a Museum of the Fine Arts; that its primary intention is to collect and exhibit the best obtainable works of genius and skill; that the application of the Fine Arts to industry, and the illustration of the Fine Arts by archeology, are both within its province, but that neither of these is its first object."

The two questions proposed to me for discussion here were: What are the aims of an art museum? What are the aims of the Boston Art Museum?

The answer here given to the first question I offer upon my own responsibility solely; that to the second I offer as my personal interpretation of certain past utterances of our Trustees which may or may not be so interpreted by the present board.

Dr. George A. Dorsey, of the Field Museum of Natural History, then read an address upon

THE AIM OF A PUBLIC MUSEUM

The function of any institution, especially of a public museum, must be determined to a certain extent by circumstances. There are, however, certain fundamental principles which, it seems to me,

¹That is, of "a scheme for the purchase of original works," called for at the time.

are applicable to museums in general. First and foremost it should be the aim of the museum to promote the advancement of the subject, whether it be art or science, which is embraced within the scope of the museum. By advancement I mean not so much what is commonly understood as the diffusion of knowledge, as the advancement which results from new investigation. I believe that it is the duty, and should be the aim of every institution, to undertake as much investigation as possible.

In the second place, the aim of the museum must be determined by the requirements, not of the present day, but of future generations, for an institution, especially any museum of wide range, which attempts to adapt itself to the supposed present requirements of any community will find that it has largely surrendered its power for investigation; above all it will find that it cannot adequately serve such a requirement, inasmuch as from the very nature of the attempt its exhibition halls must always be in a transient condition.

We may say then that the aim of the museum, so far as its exhibition series is concerned, should not be addressed primarily to the supposed needs of a community, but that it should be governed in its exhibition of material by the desire to present the universal facts or laws of its science which will be of the widest possible application.

In other words, its aim must be, both in its laboratories and in its public halls, to promote the discovery and the exemplification of the fundamental principles of the subject or division represented; and these principles, of course, are the same for whatsoever branch of science the museum may be devoted, whether it be ethnology, geology, fine arts, or history, for, as all science is one in its methods, the general principles which govern the aims of a scientific institution must be the same.

So much for the general principles, which in my estimation are applicable to museums of whatsoever nature. One or two points of minor importance may be considered. You are all familiar with G. Brown Goode's words so often quoted: "An efficient, educational museum may be described as a collection of instructive labels, each illustrated by a well-selected specimen." A museum arranged on this plan may, in my estimation, be efficient and may be educational, but it would not necessarily be scientific, and it certainly would not have general public interest. It seems to me that the conscious striving to make the public museum educational, defeats the object of the

museum and causes it thereby to surrender a very much higher function.

Still another statement of Goode's seems in this connection worthy of a moment's notice, namely, that, in which he defines a museum as "an institution for the preservation of those objects which best illustrate the phenomena of nature and the works of man, and the utilization of these for the increase of knowledge and for the culture and enlightenment of the people." This definition of a museum may have seemed adequate twenty years ago, but an institution which today states as its primary aim the preservation of objects is fore-destined to mediocrity. This is preëminently true of certain departments of science such as ethnology and paleontology. I single out these two departments of science because of them it is, as I have said, especially true, that their function is not the preservation of specimens so much as it is obtaining them; and this, of course, is simply a preliminary step to their study, from which is to follow the generalizations representing fundamental biological principles. In still another place Goode states as the function of a museum, "the preservation and utilization of objects of nature and the works of art and industry"; and to this I must again insist that the importance thus attached to the preservation of objects as the special function of a museum is against the highest welfare of any great institution, and that especially it relegates the true function of a museum to the background.

While not bearing specifically upon the chief aim or function of a museum, there is still another matter that seems to me worthy of consideration. This has to do with the storage of material. I suppose that every museum administrator has no difficulty in conceiving good theoretical grounds for the storage of large amounts of material, but I believe the general principle of storage, except in special instances, is bad, and even often vicious. My chief reason for this statement is based upon the fact that storage material tends to deteriorate; especially does it lose much of its vitality. This is to a large extent unavoidable, and the explanation for the reason thereof is a psychological one. My experience is that storage material is not examined, and that so-called "study collections" are not studied; and, except in a very few instances, I doubt greatly whether science has been advanced to the extent of the price of the bottles, to say nothing of the cost of the alcohol, for all the rows and rows

of jars of fishes and snakes which are to be found in almost every museum which even dabbles in natural history. Certainly an examination of the so-called study collections of storage material of ethnology generally reveals a sad state of affairs. It seems to me that too often the museum curator assumes the attitude of the farmer, who, unable to throw anything away, hoards everything up with the expectation that some day it will be of use. Specimens in themselves are not sacred. Their value lies not in themselves, but in the light they throw upon the great problems of the universe, biological or otherwise.

I may state in conclusion that I consider the chief aim of a museum the advancement of science. This is its function; it must not go to the public; it must lead. Science is but a description and is always simple and easily understood if properly presented. This does not imply that a casual visitor will grasp the principles of any science by a visit of an hour or so in any museum; this does not necessarily follow any more than that one should understand astronomy from a few visits to an observatory.

The promotion, the advancement of science in the laboratory, and the writing in large letters of the laws of science, this should be the aim of every public museum.

Mr. Henry L. Ward, of Milwaukee, presented a paper, an abstract of which follows. It was entitled

THE AIMS OF MUSEUMS, WITH SPECIAL REFERENCE TO THE PUBLIC MUSEUM OF THE CITY OF MILWAUKEE

There are many kinds of museums and any of these may be established and maintained by (*a*) the government of a nation, (*b*) of a state or of a city, (*c*) by a university, college, or school, (*d*) by a society or association, or by an individual; or they may be sustained by a union of two or more of these. Many combinations of kinds of museums and of sources of maintenance are possible and in fact exist, and these factors largely determine the aims and objects of these institutions. In a general way it may be stated that museums come under the following heads: (*a*) for the preservation and record

of specimens, (b) investigation and the diffusion of knowledge, (c) entertainment and recreation of visitors. Most museums combine two or all of these objects so that differences in policy and consequently in the arrangement of exhibits is largely determined by the relative prominence given them.

The private museum or that of an association may be planned to suit its owner or owners and its aim will probably be as an aid to research. Receiving no public financial aid it has no debt to pay in this direction and can not be expected to assume the burden incident to public education.

University and school museums are to furnish illustrative material for the teacher, to serve as reference museums for the students, and, in the case of the university, to supply material for research work.

Museums established by nations, states, or cities are supported by public funds, and so owe to the people of these the greatest possible return for the money invested. This can not be given in one direction only, but should include recreative pleasure, popular instruction, the advancement of science by research and exploration, and the publication of the results of these. They owe a debt to all classes of citizens and must afford pleasure and instruction to the masses as well as means of research for the scientist.

As the former class is greatly in the majority and most largely pays for the support of the museum, the exhibits should be so arranged that they can get the greatest good out of them; while the reserve or study collections will most interest the specialists. As an exhibit can hardly be equally satisfactory to both classes, care must be taken to convey definite ideas that are within the grasp of the ordinary visitor.

The Public Museum of the City of Milwaukee, now twenty-five years old, was established by the city as an independent part of the city government, and with the exception of some early popular subscriptions and the bequest by an individual of a collection and a considerable sum of money for its increase, the support of the museum is solely by a fixed proportion on the assessed value of the tax-paying property of the city.

When the writer took charge of this museum some five years ago he found the general public seemed to consider it mainly as a plaything. Two courses were open: to bend the energies of the insti-

tution toward the investigation of the natural history and archeology of Wisconsin, or to some special line of study, and let the exhibits go on as they had in the past; or to develop the museum as a popular educational institution.

Considering the source of the income, it was clear that the latter course was the only honest one to pursue.

The museum ranked in size of exhibit the sixth largest on the continent and anything short of a considerable educational influence in the community was to be considered unworthy.

This object it has sought to accomplish by making the pursuit of knowledge interesting and pleasurable; by the kind, quality, and manner of arrangement of the exhibits and the labels that accompany them; by doing a considerable amount for the schools by lectures to the children and to the teachers, and by the loan of specimens for class-room use. It was determined that the exhibits should be made for some definite object—should have a meaning—should lead to some specific conception. The mere exhibition of a multitude of objects is not necessarily educational to the public, it may be simply confusing, and the specimens might better be placed in storage in the study-rooms where they can be consulted by specialists.

We believe it important to call attention to and illustrate principles and laws, and so have exhibits showing protective coloration and form, mimicry, individual variation, evolution by environment, evolution by artificial selection, etc., in order to give the ordinary visitor some conception of what are the problems and interests of natural history.

Not believing that the museum should be a sponge, deriving benefit from the work of others and giving nothing in return, we do a certain amount of field work and of investigation and publication (though as yet we have no official medium for the latter), which more or less balances our accounts with the scientific world and places our small staff on the professional footing, necessary to its doing good work in the exhibition halls and establishing a fair reputation for the institution abroad.

Our aim with the public is first to attract, then to interest and instruct them in such an unobtrusive, but effective manner, that they are unaware of the lessons given, but are pleased with the new knowledge gained.

Observation confirms our supposition that the public enjoys in-

struction given in this manner, and we are more than ever convinced that a museum supported by the public should be administered very particularly for the instruction and edification of the public at large, rather than for a restricted division of it.

The Chair.—"We have all been very much interested in the remarks of the gentlemen who have opened the discussion of the evening. There remains before the time for adjournment full opportunity for discussion of the views which have been presented."

F. A. Lucas.—"Mr. President and members of the Association; I think the papers tonight show that much depends upon the point of view in this matter. Dr. Dorsey's paper is conceived from the standpoint of an ethnologist. Ethnological specimens for the most part have no intrinsic value in themselves, but their value consists in what they represent. In the case of the zoölogist the preservation of material is very important. There are cases in which it must be preserved. I have seen times when a wretched old alcoholic specimen was worth more to me in my studies than the best bird of Paradise that could be secured for the museum. The old specimen showed something which was not shown by any other specimen. There is danger in throwing away specimens which are apparently of no value. Not long ago I had a number of specimens consisting of fragments of the hip bones of various species of birds. The assemblage consisted of material of the sort spoken of by preparators as 'bric-à-brac.' I threw a number of these things away, because they represented a very common species. Two weeks afterwards I found that I wanted the very material which I had discarded. I required, in order to settle a question in anatomy, a number of specimens of the pelvis of this species, in order to ascertain what variability might exist in the number of the vertebrae of the sacrum, and was in trouble, just because I had discarded the material which I thought too poor to preserve. The paper read by Dr. Gilman illustrates matters from the point of view of the artist. Begging Dr. Gilman's pardon, I wish to say that I think the visitor nowadays demands something more when visiting an art gallery than to get the artist's standpoint. It seems to me that intelligent men wish to see how the standpoint of the modern artist has been reached, for the standard of modern artists has changed, and is vastly different today from what it was ten years ago. The man who first with a piece of flint

traced on the walls of his cave the outline of a mammoth was an artist. He gave his impression of what he saw, and I have no doubt aroused as much enthusiasm among his fellow cave-dwellers as any modern artist does today among his admirers. It is of great interest to me, and I doubt not it is to others, to learn something about the evolution of art, to trace its progress from the early scratched sketches on the walls of caves to the content of our modern art galleries, and I think the intelligent visitor to an art gallery has a right to ask that he be taught something in reference to the history of the development of art, and I do not see that an effort to do this would necessarily interfere with the function of an art gallery which has been said to be the inculcation of truth as to the beautiful. To me the average old master is not beautiful, and I may make the same remark in regard to the average Whistler. We have a painting by Whistler in our museum. So far as I am aware, there are only two people in Brooklyn who admire that Whistler and really like it.

"But I have seen multitudes of people standing with evident admiration before pictures which are not approved as representing high art by that class of people who have constituted themselves art critics. The majority of men, I have sometimes congratulated myself upon thinking, have come down to my standpoint.

"What we laymen in the matter of art would like to know is something about the characteristics of the various schools, and I think an art museum is called upon not only to teach what is beautiful, but to go a step further, and to educate the visitor in reference to the historical development of the various schools of art."

R. C. Hall.—"I feel impelled to give expression to a few thoughts which have come to me as I have listened to the reading of the papers which have been presented. It is an inspiration to me to come out of the world of business and come in contact with the earnest men and women who are here, laboring in the fields of science and of art unselfishly and altruistically. I am set down in the list of your membership as president of the Pittsburgh Stock Exchange. I wish to bring to you from the world of business where we are struggling, making or losing money, the thought that you are yourselves an inspiration to us. Silently, quietly, in well-chosen fields, you are doing a greater and broader and more lasting work than any of us who are contending in the marts of trade. I wish to bring to you this message, to express to you the joy and delight

which some of us feel in your work, and personally to thank you for the pleasure you have given me."

Dr. George A. Dorsey.—"I trust Mr. Lucas did not misunderstand me. I do not think that I would throw the things, of which I have spoken, out of the window; though I think many of them should be treated in that way. That has been our policy in Chicago. During the past ten or twelve years we have gotten rid of enough to fill an ordinary museum. We have given away things, which were otherwise difficult to dispose of,—material, which we cannot use in our scheme of exhibition. I presume many people would not have followed our policy of giving away material, but would have hung on to it in the hope of its proving to be useful some day. I think, however, the idea of holding on to such material is injudicious and even wrong."

Dr. W. J. Holland.—"I recall a conversation I had a few years ago with Sir Edward Maunde Thompson, who is at the head of the British Museum. We were speaking about the difficulty, which exists in museums, of making a wise selection of objects, and he said to me: 'Our policy here is of necessity to choose a few representative things which teach a truth, and retain them. We frequently have trouble in finding out how graciously to decline things which are offered to us. If we were to accept everything which is tendered to the Trustees of the British Museum, we would have finally to roof over London in order to find storage room.' It seems to me that the way to reach the great aim of a museum is by wise and judicious selection. There are inevitable limitations to available space in every museum, no matter how large its resources. Take as an illustration the matter of ethnological collections, with which our friend, Dr. Dorsey, is so thoroughly familiar. I recently stated to the Chairman of the Committee of the Trustees of the Carnegie Institute, which has charge of the museum, that I did not think it was an exaggeration to say that during the brief existence of this museum we have already had enough collections of stone implements offered us for sale, or as donations, to have paved Forbes Avenue in front of this building to the Allegheny Court-house. Not long ago I received a photograph from a diligent collector. It represented a pyramid of flints, arrow-heads, and stones, bearing evidence of having been used by men, beside which the collector was standing. The heap was higher than his head. He offered to sell this collection for a large

sum of money. What is the possible object in accumulating material in this way? I would much rather have the Spang collection of stone implements, with its two or three thousand specimens correctly labelled, representing a judicious selection out of fifty or sixty thousand specimens, than anything else that I can think of in that line. The aim of a museum should be wisely and judiciously to select the things which illustrate the truths we desire to teach."

J. E. Talmage.—"I have been intensely interested in the papers presented, and the discussion which has been carried on. We of necessity look at this matter from different points of view. While I must see with my own eyes, I would like also to understand what others see. The specialist and the master may see and point out that which to the ordinary man is not visible. A great landscape artist exhibited a canvas to a friend informing him that the title of the picture was 'A Familiar Scene.' The friend said, 'I admire the picture very much; the scene is familiar. I have wandered along those trees and along that road many times, and I cannot find anything which has not actually a place there; and yet in this, as in every one of your pictures, I see something which I cannot see in the original,' and the master replied, 'Very likely; do you not wish that you could?' The function of a museum to a certain extent is to show to the common mind the things which are invisible without an interpreter. The interpretation of nature is an end to be aimed at in our work in museums."

Dr. W. P. Wilson.—"The work of the Philadelphia Museums is principally educational. Our ideas have crystallized along that line. While I personally can appreciate the artistic in any museum and the importance of investigation and original research, the museum with which I am connected had its origin in a peculiar way; it was started for economic purposes, with a view to aiding merchants and manufacturers in their enterprises. It is supported by the city and the state, and receiving support in this way, we have felt that it was incumbent upon us to return the value of the money given to us by carrying on educational work, and this we are doing. I shall have an opportunity perhaps at a later time to tell you more in detail about the manner in which we are carrying on our work. The aim of the Philadelphia Museums in short is educational."

The Association adjourned to meet on Wednesday, June 5. at 9:30 A. M.

SESSION OF WEDNESDAY, JUNE 5

Morning

The Association convened at 9:30 A. M. and was called to order by President Bumpus. Preliminary to taking up the order of the day a report from the local Committee of Arrangements, stating what invitations had been given to the Society, was made by Dr. W. J. Holland, the Chairman. In view of all the circumstances it was decided that the invitation to visit the Homestead Steel Works, the factory of the Pittsburgh Plate Glass Company at Creighton, Pa., and to devote the evening of the day to a visit to the Allegheny Observatory be declined, cordial thanks being tendered to the representatives of these great industries and to the Trustees of the Western University of Pennsylvania for their proffered hospitality.

The report of the treasurer was submitted (see p. 23).

Upon motion the report was referred to an Auditing Committee, consisting of Messrs. O. C. Farrington, H. L. Ward, and T. L. Comparette.

The first subject presented for discussion, upon which opening remarks were made by Mr. W. M. R. French, of the Art Institute of Chicago, was

THE PRESENT JURY SYSTEM IN CONNECTION WITH
EXHIBITIONS OF CONTEMPORARY ART

"It has long been customary for associations of artists to commit the selection of works for public exhibition to a jury chosen from their own number. The art museums which hold passing exhibitions have followed the same plan, sometimes appointing their own juries, and sometimes asking the exhibitors to elect jurymen from their own number. The latter, I believe, is the method employed in the present exhibition here in the Carnegie Institute, and I may say, in passing, that it appears to me the most important international exhibition I have seen in America, except in the great expositions. This jury system has worked very well, so far as I know. I have never seen a jury of artists who did not make every effort to render just decisions, and who did not welcome good pictures from any

quarter. I once made the experiment on a small scale of submitting the pictures to two juries, which were in session at the same time. They examined two hundred and sixty-four paintings and made opposite decisions in only nine cases. This goes to show that juries, at least at a given time and place, work upon consistent principles.

"There has grown up a custom, however, among museum men of hunting up pictures of extraordinary merit, and inviting the artists to exhibit them without submission to the jury. Soon the most important artists become accustomed to being so invited and refuse to submit their works to the jury, and the lesser men, as they are able, follow their example. Under these circumstances the chief service of the jury is to pass upon the work of the younger and less known men. But this is an important service, because opportunity is thus given for unknown ability to assert itself.

"Lately some of the museum men have declared their intention of abandoning the jury system entirely, and of making their own selection of works to be exhibited, presumably through the director personally, or by other duly accredited agents. This has a strong tendency to break up the jury system, for it may become difficult for one institution to maintain a system, which others have discarded, and thus the subject becomes a suitable one for discussion."

Mr. French was followed by Dr. Charles M. Kurtz, director of the Albright Art Gallery, Buffalo Society of Fine Arts, who read a paper upon the theme,

IN THE ORGANIZATION OF AN EXHIBITION OF
CONTEMPORARY ART ARE THE BEST RESULTS
OBTAINABLE THROUGH JURIES OF SELEC-
TION COMPOSED OF ARTISTS, OR THROUGH
THE INVITATION OF SPECIFIC WORKS
CAREFULLY CHOSEN BY A COMPE-
TENT COMMITTEE OF LAYMEN?

The museum, it seems to me, might be defined as an institution for the assemblage, classification, and preservation of objects valuable from standpoints of information and inspiration.

Assuming that the principal function of the museum is education, the problem before the museum director is to discover the means by which his museum may be made most efficient in this direction.

In the first place, the judicious director will make the most of the collections confided to him, installing them in such manner as best may show them and their purposes or relationships, and also as best may arouse the interest of visitors and stimulate questioning and individual study.

In so far as he can control the increase of the collections of his museum, he should strive to avoid adding anything not exemplifying a high standard of worthiness. It is much easier to acquire works of little value than it is to get rid of them when you need for better works the space they occupy. Especially is this true when inferior works are accepted as gifts from influential but unenlightened persons.

It does not take long to organize a large collection in almost any line, but it is quite another matter to organize a fine one, and I believe that the museum, in its permanent collections—no matter what its particular field in the department of art or science—should aim to secure such works or specimens as will be valuable and delightful as well to the aesthetic connoisseur or the educated scientist, as to the ordinary casual visitor. And I believe such high-grade collections will have the greater influence even upon the unenlightened.

A museum should be considered as a treasury—and as such should contain only treasures. By that I do not mean necessarily rarities or objects only procurable at great expenditure of time, or effort, or money, but objects of real significance; of educational value, representing the best—the most nearly perfect of their kind.

The art museum, as distinguished from all other museums, should, as its special function, work for the cultivation of art appreciation and the furtherance of art knowledge among the people. It is particularly essential, therefore, that it should present only what is best, because aesthetic taste may be perverted if brought into contact with examples of depraved art, just as literary taste may be demoralized by the constant reading of a low order of writing—or good manners may be depreciated by association with persons of an inferior order.

Now, few of the art museums of the smaller cities grow with such rapidity that their permanent collections afford constant attraction to the citizens of the place in which they are located; so, to secure the constant attention and interested support of these citizens, the attraction of the permanent collection must be supplemented by fre-

quent special exhibitions. And the more excellent these exhibitions are—the larger the recognition accorded them by persons of known connoisseurship—the stronger will be their attraction and the greater their influence, while the institution itself will gain in reputation, influence, and popular support.

It is apparent, then, that in quality these special exhibitions must exemplify a high standard of merit; beyond this, however, another matter must be considered: the exhibitions must show variety—novelty. They must stimulate discussion, comparisons, criticism. To secure the very best results they should, in course of time, represent all the various schools of artistic expression, as far as may be possible, but always by worthy productions.

As a consequence, those who visit the museum often will become broadened in their knowledge, and by comparing the various schools with each other and with nature will become wisely critical, will develop appreciation of beauty in art—and in nature as well—will come to demand beauty, where at present they may be insensible of its absence, and will become centers of influence—of the infection of enthusiasm—and earnest museum supporters.

And that is what we want!

The real success of a museum is measured not so much by its extent or the value of its collections as by the esteem in which it is held by those who "know," by the influence which it wields, by the use that is made of it, and by the support which it can command.

Now, how can we best secure a high standard of merit in our transient exhibitions?

I believe that the only way is to make sure that no work which is not of a high degree of merit shall be admitted to them.

"But then," interposes someone, "how will you encourage the young artist—not yet 'arrived'—who is striving to win recognition through the public exhibition of his work?"

It seems to me that the museum only should be interested in the young artist when he is able to produce something that is worthy. Meanwhile he can make his way, more slowly perhaps, through the periodical exhibitions of the dozens of art societies of various kinds. The museum should be valuable to him in showing such work as may arouse in him a spirit of emulation, and which may offer him standards of merit with which to compare and measure his own productions. The museum is not designed to exploit the individual, but to educate and inspire all the people.

Now, if the director of the art museum "knows" art—the real principles of art—if he knows what art is and what it is for, and if he has taste—and he ought to have both knowledge and taste and to be broad-minded—catholic—in addition, to be fitted for his position—he should be able to organize a collection of art works in which every example should represent high artistic quality. Should he hesitate to assume this responsibility, a small committee of collectors of paintings—so long as they are not men wedded only to a single phase of artistic expression—might be depended upon for the organization of a collection of merit. In fact, in the art exhibitions held monthly during the winter season by various prominent New York clubs—exhibitions almost invariably organized by laymen—the average of merit almost always is far higher than that in exhibitions organized exclusively by artists. Indeed, I have yet to see the first collection of paintings formed by a committee composed exclusively of artists, either in this country or in Europe, having anything like an evenly high standard of merit in the works selected.

It is not difficult, I think, to explain why this is so.

Every artist of character develops and follows a certain individual method of expression—of technique—presumably because that, to him, seems the best method; and he likewise usually follows an equally individual choice of subject and character of interpretation. As a general proposition, he finds little to admire or with which to sympathize in the work of a man who has different ideals or who follows different methods. If he is an impressionist, he usually has little patience with the artist who paints in the manner of the earlier schools, the literalist in particular. On the other hand, the old-time painter is apt to find nothing true or admirable in impressionism.

Now, a fairly representative exhibition of the art of any country should include examples of the various schools or methods of expression, and if such an exhibition should be formed through artist-jury-action, manifestly the jury should include in its personnel representation of all the schools. But men who have little or no sympathy with each other cannot, with the best results, work together, and therefore the outcome almost invariably will be a series of compromises in which the art of every school represented will be apt to suffer.

A man who has devoted a large portion of his life to the study of art in general usually is far better qualified to serve as a jurymen

on art than the painter who has devoted himself to the study, exclusively or mainly, of a particular phase of artistic expression.

Then, also, comes in the personal element which interferes with ideal results from the artist-jury action. A member of an artist-jury will rarely vote against the production of an intimate friend, or a pupil, or the, perhaps exceptional, poor picture of the painter of great reputation. And often he will refrain from voting against the unworthy work of a fellow artist, for the reason that he may feel that such action may be greatly to the disadvantage of a struggling painter, who needs every possible opportunity to effect sales; or, perhaps, for the less commendable reason, that this fellow artist may be a member of the jury next year, when his own work is to be considered for admission.

No artist who has sold a picture will ask the purchaser to allow it to be submitted for jury consideration. Its possible rejection would at once depreciate its value in the eyes of its possessor, unless he should prove to be an amateur of exceptional knowledge and character, and it would result, ordinarily, in reflecting discredit upon the artist. So, where there is an artist-jury, all the works considered which are not in the possession of the artists must be voted upon *sub rosa*, the members of the jury simply recalling them to memory as well as possible, and, if their decision be favorable, inviting both artist and owner to contribute them for exhibition.

Usually, institutions employing the artist-jury system endeavor to secure for members of such juries artists of the greatest distinction. They know very well that while nearly all artists are willing to accept the invitation to become jurymen, those upon whom professional demands are the most exacting rarely will serve, and therefore the responsible duty usually is performed by the men who are least prominent and to whom the honor and advantage of the service appeal most strongly. The printed announcement, however, of the personnel of the jury never fails to include "the big names."

To an institution of limited means, the artist-jury system is apt to prove a burdensome as well as unnecessary expense. Even though foreign jurors are not brought over to this country from Europe with all their expenses paid (to add to the prestige of the institution), and though none of the jurymen receive remuneration for their services, the rental of the places of meeting in the various cities where division-juries assemble, the lunches, carriage hire, re-

freshments, clerical assistance, et cetera, contribute to a very considerable total, and use funds that far better might be employed to secure better results in the extension of time, effort, and expenditure on the part of an individual organizer.

Another matter to be considered is the loss of time, effort, and money, and the possible disappointment of the hundreds of artists who are led, by invitation, to submit their works for the consideration of jurymen. If an artist is not invited to contribute he goes to no fruitless expense; if he is invited and fails to qualify, he must pay the cost of sending his work to the place of jury-meeting and of having it returned to him, and must be subjected to the humiliation of having his production discredited as unworthy.

Certain artists of well-established reputation refuse to submit their productions for the consideration of artist-jurymen under any circumstances, and, if their works are desired, they must be secured by invitation. And, therefore, the "artist-jury" system cannot be applied universally, in any event. To secure a creditable exhibition, a large part of the works must be invited, and experience shows that these always constitute the better part of the collection.

Mr. John W. Beatty, Director of the Department of Fine Arts of the Carnegie Institute, said:

"Director French has courteously expressed his profound respect for art juries, and with his feeling I have the keenest sympathy. My relation to the juries which have met at the Carnegie Institute during the past eleven years has been very intimate. I have not had, in a single instance, the feeling that the jury in its action was insincere or dishonest, nor has there been evidenced the slightest desire to do injustice to anyone; on the contrary, there has been manifested always an earnest desire to render justice to all, and especially to seek out and recognize the work of the unknown young painter. The distinguished painters whom it has been our pleasure and honor to welcome to Pittsburgh as jurors have discharged their delicate tasks with singleness of purpose and integrity. I think objection to the jury system cannot lie either on the ground of dishonesty or inability, *providing the method of creating the jury secures the services of the ablest men of the profession*. There lies at the basis of the suggestion as presented here today the question, whose judgment is to be final in matters of art? Is it to be the judgment of the able

painter, sculptor, or architect, who has devoted his life to the study of art, or is the work of art to be submitted to one or more amateurs? Doubtless there are laymen who possess more knowledge of art than do many artists. Indeed, I know laymen whose opinions I would much rather have than the opinions of some artists, but this means nothing; it is not the question; the real question is: Is not the exceptional artist, the master who has devoted many years to the study of art as a profession, an abler critic than the collector or amateur, who has devoted his life to the pursuit of business or some other profession, and but a limited time, a moment or an hour now and then, to the study of art? Whistler has laid down a principle which will, I think, hold good for all time, namely, that the man who passes judgment upon any science must be one who has devoted his life to the study of that science. Our scientific friends here today will admit this, I think, as a fundamental principle. The layman does not presume to pass judgment upon profound scientific questions. The reason for this is self-evident, and applies to the science of aesthetics; it is a truism the world over; and it is not soberly disputed in the higher circles of science or art. You must place over against the amateur, who is usually the exceptional man, the able, or exceptional, painter. The reason is simple: Art is based upon nature, and by constant study of nature the artist intimately knows the beautiful qualities inherent in nature—the elusive and delicate colors, the graceful and forceful lines, and the ever-changing effects. He is therefore quick to apprehend and understand these qualities in the work of another. It is for this reason his judgment is sought by the amateur and collector. It is thoughtless to say, that because the painter has developed an individual manner, his view of art is narrow. The strong painter is as broad as the strong man in any other profession. He has studied art as ‘broadly’ and a thousand times more intimately and intensely than has the ‘broad’ amateur. His knowledge is not limited to technical qualities. He knows the larger phases of art also. The works of the masters of all times have been his constant study. I believe it to be a simple fact that no important private collection has ever been formed without the counsel of one or more able artists. There may be exceptions to this rule, but no one conversant with the facts will deny the rule. When the Boston Museum desired to establish the authenticity of a Velasquez, it did not invite a committee of business men or amateurs to

decide this vital question, but a committee of the most eminent painters was asked to go to Boston to pass judgment upon the picture. This was an exceptional case, and it called for the highest and most critical judgment. It is the exceptional case, or the work by a new man, which always requires this kind of judgment. Anyone may go with the tide and buy paintings by men of established reputations; any collector may do this with reasonable safety.

"It may be of interest to you to know how the Pittsburgh jury is created. A ballot is issued to each of the contributors and he votes for ten members. During ten years the chairman of the Fine Arts Committee served as president of the jury; this year the director of fine arts served in this capacity. Thus, excepting the presiding officer, the jury is the choice of the painters. As the president does not vote except in case of a tie, I feel free to speak frankly of the merits of the system. If there be any objection to the present plan it is rather on the ground of the work being done, of necessity, with great haste. In the examination of thousands of paintings the average time given to each work is about thirty seconds; I do not mean that only so limited a time is given to each of the works presented, but that this is the average time given. The great majority of works justify but little consideration, and the conditions seem to demand haste, because four or five days are as many as the average busy man or woman can give gratuitously to public jury service. It is only fair to say, however, that rarely does a picture possessing real merit pass the keen eyes of ten experts, trained by long experience, without a challenge from one or more; when thus arrested, the picture always receives the most careful and conscientious consideration. Nevertheless, it is possible, and even probable, that a jury in the course of several days' rapid work will make mistakes. Members of juries realize this quite as well as does the critic, and they would be the last to claim infallibility. If any plan can be devised which will permit more deliberation, at least this objection to the jury plan will be overcome.

"In the application of the jury system we meet with another difficulty. Many painters refuse to submit their pictures to the judgment of a jury; some of them maintain that their position is so well established, their works so well known, and their standing is so well established before the public that they ought not to be asked to submit their pictures to the judgment of a jury. This is perhaps

a fair enough position for a man to take who has become very eminent, and I perhaps might see no objection in a compromise which would provide for a change. We to some extent have followed the plan of inviting some few very eminent painters to exhibit certain of their works. Eminent writers are not asked every year to submit their works to a committee of their peers. W. D. Howells would not be asked to submit his work to be passed upon by a jury of writers, and so I think that a man of the eminence of Mr. John Sargent should not be asked to submit his pictures to the judgment of a jury of fellow artists; his position is already firmly established. But for the large number of men each year entering the field the jury system is the most perfect, which has as yet been devised, and in my judgment the only system, which can be employed. In selecting a jury I always wish three or four of the ablest men to be upon it. In our case we have generally succeeded in having at least two or three very able men upon the jury. In conclusion I wish to say that upon the whole the jury system is the safest and best plan which we can adopt in judging works of art."

Benjamin Ives Gilman.—"The subject is one about which I know but little and therefore should say but little. The idea, however, has occurred to me that the question is in reality whether we can best trust artists as critics, in selecting a jury, or a select body of men chosen from the public for whom the artist works; and I sympathize rather strongly with the idea presented by Dr. Kurtz when he states that the artist is not in general a good critic. I lean, therefore, rather toward a jury composed of connoisseurs. At the same time it seems to me that in America we scarcely have that class in existence yet, and therefore it may be possible that a jury composed of artists is the only jury which is possible. I think the difficulty which Mr. Beatty has brought out is a very genuine one and shows that really we ought not to submit the works of an artist to his brethren; they ought to be submitted to the great final judge of all—the general public; that is the only court from whose judgment there is no appeal—the judgment of the civilized world. What makes Shakespeare a great poet, and Beethoven a great musician is not the judgment of a small selected jury of poets or musicians, but the judgment of the great world of men. What makes a physician eminent in the world is not necessarily the judgment of his fellow practitioners, but the judgment of the clientele for whom he labors.

The reason the jury system is not better is that those of us who are not practitioners do not take the trouble to inform ourselves sufficiently to qualify ourselves to be good judges."

Dr. W. J. Holland.—"We have present with us this morning a gentleman who for ten years has served as chairman of the jury of award in the Department of Fine Arts in the Carnegie Institute—Mr. John Caldwell. I think we would all like to hear an expression of opinion from him."

Mr. John Caldwell.—"I am in the unfortunate position of one of the gentlemen who spoke here yesterday, who said that he could not be addressed as 'Doctor' or 'Professor'; I am simply John Caldwell. Very much to my surprise I had the honor a few years ago of being chosen as chairman of the Committee of Fine Arts of the Carnegie Institute; I say 'to my surprise' because there are two subjects which I have been studying all my life and about which I have been unable to learn much, the one is John Caldwell himself, the other is art. I cannot find any person who can give a satisfactory definition of art. The longer I live, the more I reflect, the more I realize that Mr. Gilman is mistaken. All work which is worthy of being called art is not conceived or done for the purpose of pleasing the general public. I hold to the principle that whatever is popular in art is absolutely bad. According to the idea advanced by Dr. Gilman we ought to cater to the general public. If that were done the whole Institute would not be able to hold the rubbish which would be foisted upon us. Mr. French mentioned the case of an artist who came to see the exhibition from which his picture had been thrown out. As chairman of the Committee on the Fine Arts of the Institute I some years ago received a letter from a gentleman in the West who wrote inquiring what kind of pictures we desired, stating he had a great many photographs and newspaper clippings and that he had an artist friend who was willing to paint any kind of a picture that might be wanted. The attitude of this man represents to an extent the attitude of the general public.

"There are no people for whom I have more respect and love than artists. The jury here last year was not composed of ten men; it included a woman, Miss Cecilia Beaux. The ten members of the jury are, however, controlled by less than five. Time and time again I have seen the jury coming down to the standpoint of the average buyer of pictures before venturing to express an opinion.

That is not criticism; far from it. An artist sees a tolerably good picture painted by a friend of his who, he realizes, may possibly be upon the jury next year and who may pass upon his own pictures in time to come. He decides in favor of the picture of his friend. Artists are human and are influenced by considerations of this kind, but this is entirely opposite to the true spirit of high art. No great work of art anywhere was ever created merely for the purpose of obtaining money for it. No man can keep one eye on the canvas and another on the pocketbook of the public and produce a great work of art.

"To come down to practical matters, I am thoroughly convinced after ten years of experience that the jury system is a failure, not because we elect ten artists, but because the composition of the jury is not changed sufficiently from year to year. Painters refuse to submit their work to the judgment of these ten men. Mr. Beatty is right in saying that there are men who ought not to be required to submit their work to the judgment of juries, and I agree with Mr. Kurtz that there are many laymen who are quite capable of deciding upon other than mere technical grounds whether a picture is or is not a fine picture and possesses an educative value for the public. Personally I would rather have twenty really splendid works in this gallery of art than three or four hundred fair to medium pictures. Rightly chosen, the smaller number would have more educational value for the public.

"The suggestion has been made to me time and again that we should mingle with the jury of artists a few connoisseurs who, without regard to technique, are appealed to at once by a picture as having good value. Again, permit me to say that our jury of ten is too large; ten are quite too many. A jury of five men would be preferable to a jury of ten. Whether these five men should consist of three painters and two art connoisseurs is a question to be considered.

"I thank you, Mr. President and gentlemen, for having allowed a man who knows nothing of the subject to speak as long as he has."

Dr. George A. Dorsey.—"I find myself in accord with some of the remarks made, not with all of them. I wish more particularly to take issue with Mr. Gilman's statement that we must depend in the end upon the judgment of the civilized world. The judgment of the civilized world is in reality the judgment of a handful of men whose opinions are accepted by the civilized world."

Dr. Gilman.—"There is of course point in what has been said as to the fact that the judgment of the civilized world is originally the judgment of a discerning few. We all know that the general public does not exercise the highest degree of taste in many matters. Take the ordinary furnishings of a house: The general public purchases stuff which is atrocious to men of taste; cuspidors in the form of plug hats, butter dishes made in the shape of flat-irons, and a thousand other equally anomalous things may be found for sale in establishments where household furnishings are supplied. Such things would not be provided unless the public encouraged their production. A man who goes out to provide an outfit for a house will be confronted by all sorts of bizarre, taste-offending things, startling wall papers, and what-not. The general public buys infernal things, we all admit. A man of taste on such an errand as I have described must satisfy himself by picking out those things which are least offensive and taking them home. When I said that the judgment of the civilized world may be relied upon in the end, I meant only to say that the final judgment of humanity in general is unimpeachable. That final judgment is of course often foretold. A jury of cultivated men may be able to tell you in advance what the judgment of posterity will be, but that judgment is, as I have maintained, a judgment pronounced by laymen. What constitutes Beethoven a great composer? Not the passing judgment of his contemporaries, though many of his contemporaries realized his greatness, but it is the judgment of mankind, spoken not by a select few, but by the vast majority of men who have attended to the production of his works and who agree in assigning him a permanent place among musical composers. His accepted greatness is the result of the verdict passed upon him and his works by mankind."

John W. Beatty.—"I arise again to emphasize the point that expert judgment is dependent upon knowledge and knowledge is dependent upon profound study. I think we ought not to attach more importance to this novel, and to me amazing, proposition than it deserves—the proposition to relegate to the rear the masters of art, the men who are today creating works which will live long after the critic of art is forgotten, and to place in their stead the amateur, the dilettante, the one who has neither the knowledge nor the ability to produce a work of art. It is folly to assume that one who has studied art theoretically can know the subject as thoroughly as the

one of equal ability who has studied practically as well as theoretically. Philip Gilbert Hamerton touches this point when he says: 'Our only chance of safety lies in being critical with thoroughness of knowledge. . . . The true critic is a person who, having lived within the cliques and learned their language, can get outside of them by an effort of the will, and see them at the same distance from himself. *He knows them from within and he knows them from without both kinds of knowledge being absolutely indispensable to justice.*'

"In considering this subject, we must keep in mind the strong men, the masters of art. Only a few in any profession are masters. Several years ago at a dinner in Allegheny City, this question was under discussion. The two foreign members of our international jury of that year were present and took part in the conversation. Twenty years before they had been fellow students in Paris. They estimated of the two thousand students who were studying in Paris when they were there, probably only twenty had achieved distinction. A gentleman present remarked that this was a low percentage—only one per cent. A successful and eminent business man, who was of the company, was asked if he knew how many men in a hundred succeed in business. He replied that only one per cent. of those who enter business succeed. The previous year I visited the Salon exhibition, accompanied by two able painters. We decided to check in the catalogue the works that they agreed were unusually strong and worthy of special consideration. There were more than two thousand paintings in the exhibition. Upon examining the catalogue, it was found they had checked nineteen—one per cent.—again. If one considers the entire profession, he finds that the average quality of the work produced is not high. It is not high, as I have remarked, in any profession. Is it a satisfactory answer to the question presented here today to say that many painters, that even the great majority of painters, are weak and poor judges of the works of art? The percentage of strong men in the professions of science, of medicine, business, if you please, is very small. A small number of men determine standards and establish reputations. As Dr. Dorsey has just said: 'The judgment of the world is in reality the judgment of a handful of men whose opinions are accepted by the civilized world.' I could give you many illustrations of this fact. The history of art is full of them. Let me give you one. There is

an Italian painter living today, Antonio Mancini, who is not popularly known; as far as the public is concerned he may be said to be unknown. I know of only one painting by him in America. Eighteen months ago he exhibited a powerful picture in the Carnegie Institute annual exhibition. Some years since John S. Sargent, recognizing the great ability of Mancini, purchased a number of his works. Mr. Sargent has no hesitation in saying that he considers Mancini one of the very ablest painters of the time. He owns four or five works by Mancini. H. W. Mesdag, the well-known Dutch painter, also discovered the beauty and strength of Mancini's art, and purchased five or six of his strong works, among them 'The Invalid,' a modern masterpiece of rare charm and beauty. Nor do these two painters stand alone in their appreciation of this modern painter; many other artists entertain the same high opinion. Mancini simply has not 'arrived,' so far as the public, the collector, and the dealer are concerned. His reputation is in the course of making, and is going through the usual stages of development. The thought I want to impress is, that, long before the public or the amateur recognizes the master, a few of his fellow artists understand and recognize him. Thomson has recorded a number of instances. Corot, who labored long and patiently before public recognition came, was early understood by a few of his fellow painters. Twenty years before he achieved fame, Constant Dutilleux, himself a painter of limited means, purchased a small Corot landscape at great personal sacrifice, and in the same year Delacroix said of the gentle laborer, 'He is a painter—a true painter.' The first ray of light crossed Millet's dreary pathway when he was told that Diaz, with whom he was then unacquainted, greatly admired 'Le Léçon d'Equitation'; and many years before this great master was known even to the art dealers of Paris, Rousseau bought one of his works when he could ill spare a franc from his own meager earnings. In 1866 Daubigny's important moonlight was hung in the Royal Academy, and a young painter named Wills purchased the work. In 1837 Rousseau's 'Avenue de Chataigniers' was rejected by the Salon jury, and Diaz, Dupré, and Delacroix were unceasing in their protestations. Despite these evidences of thorough appreciation by the few who knew, the same author says public or general recognition was often tardy, but, as Henley has said, 'An eye for paint is no more general than an ear for music or a head for mathematics.'

"There is this insurmountable objection to a jury composed of amateurs: The great painters and sculptors of the world will not submit their works to a jury of laymen; of this I feel very certain. The relation existing between the art museum and the artist is interdependent; and the art museum must take into account the party of the second part. We cannot arbitrarily decide for artists what they must do. I would not care to be the one to propose so radical a change, inasmuch as the whole world has for hundreds of years submitted to artists public questions touching art. If the issue were a question of a weak professional jury against a strong amateur jury, there undeniably would be arguments in favor of the amateur jury, but there is no need to have a weak professional jury. It should be our aim to secure the highest professional or expert opinion. The last court of appeal always has been and always will be the trained, able, broad-minded, professional man, and there are proportionately as many able men in the profession of art as in any other profession or calling. That there have been weak juries within the history of art, or that artists are not less fallible than other men, does not change this abiding fact which is based upon the experience of men in every field of human endeavor. Under our plan, we bring ten eminent painters here each year, chosen by votes of artists residing in America and Europe; among these, four or five may have unusual influence; I believe, however, that each votes honestly and is not unduly influenced by the few whose ability he may justly recognize. I think the jury system is the safest method of passing judgment upon works of art, because of the intimate and profound knowledge of the painter."

John Caldwell.—"Mr. Beatty and myself have repeatedly discussed this question for hours at a time. Mr. Beatty gives himself away as an artist; he is a distinguished artist and takes the narrow view of an artist. The artist knows what is correct in drawing and correct in color; but correctness in drawing and in color does not make a great work of art. The artist looks at the technical side of the work before him and passes upon it favorably; the public does not regard technique. The layman, without reference to technical matters, decides upon the good or the bad taste displayed in the picture, upon the larger qualities which the picture possesses or which the picture lacks, without reference to the means of a technical kind which the painter has employed to produce results."

Charles M. Kurtz.—"The mistake made by Mr. Beatty is this, that he does not give credit enough to the man who devotes his whole lifetime to the study of art in all its phases. He compares the critic who has thus studied with the painter who has devoted himself to a single phase of expression. A man who is thoroughly educated, who is catholic in his judgments, who has studied proportions, has made the works of artists everywhere belonging to all schools his special study, will display a judgment far superior to that of the man who has devoted his whole time to a single line of expression, and almost every painter devotes his efforts to study in but one direction. His success depends upon his doing this, he must be distinctive, must be individual, must have his own method of interpreting nature, and being thus devoted to the pursuit of one particular style in art, his judgment is apt to be far less catholic than that of a man who while not engaged actively as a painter in the pursuit of his profession is nevertheless making art in its broadest sense the object of continual investigation and research."

W. M. R. French.—"I think the opinion of the public is generally fixed in the end by the concurrent opinion of those whom they have learned to respect. There is a very good expression used by Ruskin in regard to Titian: 'There goes around an everlasting murmur proceeding from the consent of all men that he was greater than they.'"

Mr. T. L. Compurette, curator of the numismatic collection, U. S. Mint, Philadelphia, read a paper upon

THE INSTALLATION OF A COLLECTION OF HISTORICAL COINS

I should not be in the least surprised, that, if I could tell the Association how to procure a collection of historical coins and medals, this paper, provided it were brief, would be much more acceptable than anything that I may be able to say on the subject of installing such exhibits. That topic too, as well as several others but remotely connected with the main theme, will be briefly discussed.

The *plan* of exhibiting a collection of coins and medals will naturally be influenced very largely by the *purpose* one expects the

collection to serve. To some it may seem absurd to attach to such objects any other than the one most obvious, their historical value, and chiefly their value to the student of political and commercial history. But such a position is not necessarily the correct one in every case; for the Greek coins, and that includes the coinage of many non-Greek communities, may be regarded rather from the point of view of the development of the fine arts, so that while the historical principle still controls, the manner of indicating it in the installation will differ considerably from that employed when the aim is to illustrate political history. And if a museum has through the generosity of some wealthy collector come into possession of a numerically small, but artistically fine collection of ancient and modern coins, it seems to me to be no great mistake to install them with regard to the artistic rather than the political point of view. For such a collection is apt to include but one or two specimens from a given region, and thus the geographical arrangement of them is of but little value to the student, of almost none to the investigator, whose work requires full series, and is most unsatisfactory to the museum authorities. On the other hand all know how well a collection of coins illustrates the historical development of the arts, a statement so true of the ancient Greek coins that a competent authority has called them "the grammar of Greek art." It is therefore easy to group them into classes, in which the artistic excellence and technical skill show the same advancement as the sculpture of corresponding periods. A comparatively small collection so arranged assumes at once a definite educational value.

It must not be forgotten, however, that the truer scope and purpose of coins and medals are much greater and more important. They are among the most trustworthy pledges of history that we possess and many are the pages and chapters of history that have been written from no other documents. And though much has been already done to ascertain what light ancient and mediaeval coins can throw on events and political changes left untouched by the contemporary historian, there yet remains a great deal to be done. For example, the history of ancient commerce is yet to be written. The accounts we now possess are feeble and incomplete, and the subject can only be treated satisfactorily with the aid to be had from ancient coins the frequently changing standards and denominations of which may point out the path of trade; for often we

find a half-civilized or minor state adjusting its money to that of a powerful nation with which it has established new or more extensive commercial relations. For such a purpose, the real purpose of a collection of historical coins, a complete, or approximately complete series of each country is indispensable. Such an ambitious program is hardly possible for our American museums at the present time, and it will be many years in all probability before we begin to imitate the example of the British Museum and of the Royal Museum in Berlin in the acquisition of vast numbers of coins and medals of all ages and countries. At the present time there is not the demand for them, and this is largely due to a lack of knowledge of the value and interest they possess, a knowledge which the museum must supply. And it is not alone the man of only general culture whose interest has not been aroused, but the institutions of higher learning have not yet discovered the value of coins and medals in teaching certain subjects, especially history. With us coins are yet in a large measure mere curios, and, so long as that attitude exists, no museum will have the enthusiastic support nor the large means necessary to create a collection sufficiently extended for research work.

In one respect the museums can equip themselves in a short time and at small expense to be of very great service to the community and especially to the schools. The portrait of Alexander appears on the coins of his successors and from that time on, with the exception of the Middle Ages, the coinages of Europe, of portions of Asia, and of Africa preserve the portraits, in varying degrees of faithfulness, of nearly all royal personages and of many other persons of prominence. It is unnecessary to dilate upon the value of a long series of these portrait coins. The high school and college population and the general reader would certainly find them of very great interest.

Such a collection could be quickly made, as it is always easy to procure a good portrait in one or another of the numerous denominations, and, as the portrait is the chief interest, a good specimen of a plentiful issue is at once satisfactory and inexpensive. By avoiding rare and expensive pieces I believe that the whole series of portrait coins can be brought together at an average cost of \$1.50 per specimen.

A natural development of such a collection would include the

modern portrait medals that present the likenesses of other than royal personages. The modern medal originated in Italy at the middle of the fifteenth century and as a result of the enormous popularity of the new art the personal appearance of the leaders of the Italian Renaissance in all fields of thought and action have been preserved for us by Pisano, Sperandio, Andreas Guazalotti, Mare-scotti and a large number of other artists, and oftentimes with a portraiture that is inimitable. The medal then served the purpose of the modern photograph, being made by order and at the expense of the subject for distribution among his friends. The result of such use of the medal was a more extended development of it and an artistic excellence in the hands of the best artists of the day that one looks for in vain at the present time. Naturally the number of pieces ordered by the subject was not, with few exceptions, large, so that they are now scarce and in some cases cannot be had at any price; but copies of them are obtainable from the European museums at a small cost. As a rule I deprecate the suggestion of putting copies of coins and medals into our collections; and it is in nearly all cases unnecessary. But where originals are so rare and so exceedingly costly the practice is certainly excusable. At a later date when the practice of striking medals had come into fashion (the earlier specimens just referred to were cast) the number of originals was much greater and can usually be procured at a reasonable cost. I refer to these Italian pieces as a good illustration of what can be done with a collection of portrait coins and medals. To point out the wealth of it by mentioning the long list of distinguished men and women that would be represented is to take too much of our time. For the gallery would be almost complete in good likenesses of the great churchmen, teachers, poets, generals, noted women and even children, and of the kings and queens, of Italy chiefly, from 1430 to 1600.

If there is any value in the suggestion about portrait coins and medals it is of course chiefly for the museum that lacks the means or justification to attempt to build up a great collection of the coinages of the world. And yet the museum that has not entered upon this phase of work, but proposes to do so, will hardly find a better point at which to begin. For no amount of enthusiasm for one's field of interest is apt to overestimate greatly the educative value of a coin and medal room in the museum, where one may go

and see the likeness of the person that is figuring prominently in the events about which he is reading or is more seriously studying.

Coming now to the subject of arranging and exhibiting the coins and medals: there are some few things which must of course be carefully regarded, while many features of the plan may be varied according to the extent of the collection and the character of the space that can be devoted to the cases. Considering the collection now from the point of view of scientific numismatics it is perfectly obvious that the arrangement must be geographical and chronological, if it is to have any scientific or educational value. To arrange Greek coins in the alphabetical order of the cities where they were struck is nothing short of absurd; the resulting conglomerate mass presents the single advantage of facilitating the finding of the coins of a particular city in the cases, and that is an advantage without a real value. The alphabetical scheme is actually in use in some places; it was probably copied from the national collection in the mint where I found it employed; a change has been made there.

The main lines to be followed in the arrangement of a collection comprising ancient, mediaeval, and modern coins have been indicated in the scientific manuals of numismatics, beginning with Eckhel's epoch-making work to those of the present time, but on the details of the subject there is an embarrassing silence. Just where a man begins to feel the need of clear guidance there the silence begins. For it is almost useless to point out to a trained museum man that the ancient and modern coinages should be separately installed, that the mediaeval specimens should form still a third division; or that in arranging the collection geographically he should begin at a naturally convenient point and follow up with the other countries in the order of contiguity, yet it is with information on such perfectly obvious matters that the manuals usually stop. But how to arrange the coins of Italy or Germany with their numerous states of every description is the much more difficult problem, and of this one seldom finds a solution suggested.

A single principle, I think, if carefully followed, will simplify the difficulty presented by those states, which, like Italy and Germany, have emerged from a geographical expression into a united kingdom or empire. The coins should be so arranged in the case that the state whence sprang the royal or imperial house of the united

country is last, and thus you have a natural transition to the coinage of the united realm. For instance, in dealing with the modern Italian coinages I begin with Sicily, then pass to Naples, to Rome, Florence, Bologna, the minor states of the east coast, then across the northern end with Parma, to Genoa, placing last the coins of Savoy and Sardinia, which are naturally followed by the coinage of the kingdom of Italy. Germany of course presents the most difficult problem, but by the same principle the coins of Prussia would be placed last in the case.

It is difficult to avoid the feeling that I am carrying owls to Athens when discussing such a subject before trained museum men, but there is also the possibility that the careful study of minute details has brought up problems and with them some sort of a solution that may be approved by you; and still better, it is probable that some of you will be moved to impart your riper knowledge of the subject. A word about the cases and some methods of exhibiting coins and medals in them! The cases in the mint are a combination of the horizontal and upright, both sloping a little, at once to aid the eye of the observer and to give the upright case sufficient slope to keep the coins in place without the aid of fastenings, or of projecting shelves. Instead of a clip or other device to hold the pieces on the tray we have thin cleats on which they rest. It is of course desirable here as in all other forms of installation to keep out of our cases everything possible in the way of a device that is not wholly indispensable and one can easily dispense with the clip or the nail so often employed to fasten coins to a tray. They detract somewhat from the appearance of the case and injure some coins, as for instance proof coins. By sloping the upright portion of the case one avoids the necessity of using the clips, or of adding narrow shelves; the latter are expensive and the specimens on one of the shelves are always obscured by the shadow of the shelf above.

The trays which are about $2 \times 3\frac{1}{2}$ feet, have the advantage of being just about large enough to contain 200 or 300 specimens, or approximately the number of coins of a given country that one would care to exhibit at one time.

The perpendicular case with shelves on the sides possesses, so far as I can see, but a single advantage, and that is economy of space. With them you can install an enormous number of coins and medals in a comparatively small room, but you might almost as well pack

them into drawers, for nobody can consult them without a physical discomfort that the intellectual pleasure cannot make him forget, and an expense of energy and sacrifice of dignity beyond any hope of just compensation. For these cases extend almost to the floor and cause a man to stoop or even to get down on his knees (an unusual practice with most people) to see the pieces on the lower shelves; or they extend up very high and cause the visitor to crane his neck, if not climb onto a chair, to see the uppermost specimens; and, if they do not extend very high or very low, they can hardly be said to possess any advantage to recommend them.

Lastly I wish to refer to the small boxes with a label card attached. The advantage derived from the use of such boxes is very doubtful, and there are some decided disadvantages. They provide a convenient label and they make it sure that coins and labels will not become confused, and also, an important feature, protect the coin thoroughly against abrasion when handled. But on the other hand the box obscures important details of the piece except where the light falls most favorably, and this obscuration of the specimen is still further increased by the undesirable white background. As is well known the most desirable background for both gold and silver is either blue or maroon, of which the latter is probably to be preferred. The pasteboard box gives us a white background which is not only in itself undesirable but soon becomes soiled and unsightly.

The question of labels cannot be answered alike for all cases. Where specimens are so small and numerous it is obviously impracticable to label each one; nor is it best to do so. In the cases we want only a few general labels to indicate the country and the monarch, and perhaps an occasional designation of the denominations. A carefully prepared guide book is by far the best; and few departments of museum work offer material for a guide book that will prove more attractive and instructive to the layman than that of coins and medals.

W. J. Holland.—"I requested Dr. Comparette to speak to us because I wished information, and I know of no man better able to inform us about this subject than the gentleman in charge of the admirable collections belonging to the United States Mint in Philadelphia. The problem of installing our own collection of coins came up for consideration, and without much light and without much precedent I resolved upon practically what has already been

pointed out by Mr. Comparette as the method employed at the mint, the building of cabinets in which there is a combination of horizontal and perpendicular cases. We have obviated the necessity of stooping when consulting the contents of these cases by placing the exhibits, as the painter would say, 'on the line.' The perpendicular cases are not very high. In front of them are the flat cases, which are not so deep that the observer is compelled to reach forward to read the labels. In the perpendicular cases we have compartments in which we put a piece of woodwork composed of 3 ply veneers, which maintain an absolutely even surface. These are overlaid with cork a quarter of an inch thick on top of which we put a velvet cover. The coins are attached to the cork by means of silvered or gilt pins. The coin is supported by these little pins one below and one on either side. There is space for labels. These plaques can be removed from the frames in which they are exhibited and be stored in shallow trays which have been provided, and thus changes in the series exhibited can from time to time be made. As political events bring some one or other country before the public we can display the coins of that country. I believe it is a mistake to attempt to display more than a limited number of coins. We shall of course have on permanent exhibition a display of the coins of the United States, and probably a characteristic group of Greek coins."

C. M. Kurtz.—"I have devised a case for the exhibition of medals which is very simple, and provides a most admirable light. The case is shallow, with shelves about four inches deep and about five inches apart. On these I place strips covered with dark green cloth, which is preferable to velvet as it does not accumulate dust. These pieces lie back, resting on two little pins. A good black tack with a small head will do. By leaning back they get admirable light. You can install a tremendous number in a case of that sort. You can have a card at the side, giving the number of the shelf and the objects on it in order. There is no spotting of labels to take away from the beauty of the coins.

"Another way is to cut out a piece of passe-partout, allowing the coins to fit into the space. These could be hung in swinging frames. You can see both sides.

"A display of medals, particularly of French or Austrian origin, is always instructive from an artistic standpoint."

O. C. Farrington.—"The second method I think desirable, as it

enables one to see both sides. The same result is secured by us by hanging medals from rods between two glasses. The coins are attached to the rods by 'clips.' We make the labels the color of the background, which is so simple and excellent an idea I wonder that others have not used it more."

The Association at 11:30 A. M. adjourned in order to accept the invitation given by Mr. Robert C. Hall to take luncheon at his country seat, "The Meadows," at Ross Station, on the Western Pennsylvania Railroad.

It had been the intention of Mr. Hall to entertain his guests under the shadow of the beautiful trees upon his estate, and he had provided a barbecued ox as the *pièce de résistance* of the menu. The dripping skies forbade the execution of his purpose, and the guests, after viewing the ox as he was being turned upon the skewer over a bed of glowing charcoals, repaired to the mansion, where, having inspected the remarkable collection of Indian baskets which Mr. Hall has assembled, sat down to a luncheon charmingly served, although not in the rural setting which the host of the occasion had originally intended.

After luncheon, at 3:15 P. M., the Association was called to order in the drawing room of Mr. Hall's house by President Bumpus. By a rising vote the thanks of the Association were heartily tendered to Mr. and Mrs. Robert C. Hall for their generous hospitality.

As some time remained before the arrival of the train to convey the Association back to Pittsburgh, the president suggested a brief session.

Dr. George A. Dorsey read a brief paper upon

THE MUNICIPAL SUPPORT OF MUSEUMS

There are museums and museums; the meaning of the function of a museum today differs from that held yesterday. The definition of a museum itself has changed and is changing. I have elsewhere defined the aim or chief function of a museum, the investigation of those phenomena which fall within its scope, with the view of endeavoring to advance science. If this definition of the

function of a museum has any merit, it follows, as I shall attempt to show, that the museum will command and deserve the support of its municipality, state, or nation, as the case may be, just in so far, and only so far, as it is true to this high function, namely, the advancement of science. The question therefore resolves itself into a judgment as to the value of science itself. Of the value of science to you, it is certain that there is no need for an advocate. A few words then will suffice. Briefly, describing in the fewest words our conceptions of phenomena, science represents today the highest point so far reached by human intelligence. This does not mean that this point is a fixed one, for it is a trite saying that the science of yesterday is the superstition of today, while that of today in generations to come will be twentieth century folk-lore. But at all events, our science not only represents the highest point reached by human intelligence, but it embraces the wisdom of all that has gone before, and it furnishes us with our one guide for the future. Unfortunately the principles of science today are so little heeded by such a great majority of us that our manners and customs, and social and religious life, are based not so much upon reason and intelligence as upon habit and blind, unthinking obedience to what has gone before. It thus appears that science and reason stand opposed to dogma and superstition, but that dogma and superstition are doomed to an early disappearance scarcely any one believes. But at any rate it is the privilege and duty of every scientific institution to hasten this time to the best of its ability. It seems to me that the true value and importance of any institution to a community lies in the power which it may exert upon the people at large to call into consciousness the various activities of their life. The museum to accomplish this must appeal to the reason and stimulate the imagination of the people. If it can do this, if it can set forth in an intelligent manner a few of the great principles or laws of science, its power for good in any community can not be over-estimated. As there is the need and demand for scientific training today, and it is certainly greater today than ever before because more accessible, so there is the need for public museums which shall bring the facts and laws of science to the public; and in so far as a museum fulfills this high function, to that extent does it merit and, in my estimation, will it receive public support.

A general discussion then took place, which was participated in by Dr. Bumpus, Dr. W J McGee and others.¹

The Association returned by train to the East Liberty Station of the Pennsylvania Railroad, where a large number of the delegates, under the guidance of Mr. Anderson H. Hopkins, the librarian of the Carnegie Library, thoroughly inspected the East Liberty Branch Library of the Carnegie Library of Pittsburgh.

Evening

The Association reconvened at 8 P. M. in the Lecture Hall of Science, Dr. H. C. Bumpus in the chair.

Dr. W. P. Wilson presented a paper upon

THE ORGANIZATION AND DEVELOPMENT OF THE PHILADELPHIA MUSEUMS

The Philadelphia Museums was organized by City Councils in 1894, for the purpose of developing a group of museums, which later might be known under several heads—general, scientific, economic, educational, and commercial—classed together as one institution. The Philadelphia Museums is governed by a Board of Trustees consisting of representative business men, appointed for life, and the Governor of the State, the State Forestry Commissioner, and the State Superintendent of Public Instruction, as *ex-officio* members; also the Mayor, the President of each of the two branches of City Councils, the President of the Board of Education, and the Superintendent of Public Schools, as *ex-officio* members for the city of Philadelphia.

The commercial and economic museums were first developed. Money for the increase of commerce and the study of economics could more readily be secured than for other departments. Today the work which stands out prominently is:

I. THE INTERNATIONAL BUREAU OF COMMERCE

This bureau for the development of foreign commerce secures its support from the merchants and manufacturers who need informa-

¹Owing to the unfortunate absence of the stenographer no record of this discussion has been preserved.

tion on the conditions and possibilities of foreign commerce. This bureau is in correspondence with thousands of business houses in cities in all parts of the world. It gives to them information concerning trade conditions of whatever character asked throughout the United States. It puts the American manufacturer in touch with those foreign houses which handle his particular output. This bureau also gives information on methods of shipping, on special lines of manufacture in different parts of the world, and how trade can be secured on either side of the great oceans.

II. THE LIBRARY

While agents for this bureau are maintained in many cities, a large library, a department for itself, filled with foreign government documents, statistics, and government publications from all over the world, is a very important supplement to the information required in the bureau. This library is peculiar in many directions. It has no equal in the United States, when one considers its foreign trade publications. Its beginnings were accumulated from the books taken to different expositions by foreign governments and then presented to the museums.

It maintains a department filled with the directories from all the large cities of the world. It is also the most complete consular bureau found in any country, having on file the consular publications from every country sustaining such service. It also includes the various official books—yellow books, blue books, and the like; official government statistics and publications; trade reports; chamber of commerce reports from such organizations all over the world; maps, topographical and other forms, from abroad; together with all the latest books of travel and exploration. Nearly one thousand current newspapers and trade and technical journals, with dailies from leading foreign cities, are on its forms.

All these facilities and many more are made use of by the Bureau of Foreign Commerce in the interest of enlarging our trade with foreign countries.

III. THE MUSEUM PROPER

The museum proper contains a large number of ethnographic exhibits and a great display representing geography and commerce, all under a scientific curator. The complete exhibits have been generally arranged geographically.

For instance, the collections coming from different parts of Africa have been so placed as to represent the actual geographical location of the different divisions. In one case may be arranged the ethnology of a special tribe or location, and adjacent are the raw products which form their clothing, the gums and resins which they may have used or collected, and the different materials which may have entered into the economy of their living; and, last of all, the exhibits of textiles, implements, or articles of any kind, such as at the present time are made in civilized countries and sold to these people. Therefore, in the resumé of the collections of any region you have a more or less complete history of the life of the people.

IV. EDUCATIONAL WORK

The educational work of the Philadelphia Museums is directed in three important channels beyond the general educational work always in progress in a public museum.

The first attempt to reach the public schools was made by sending out loan collections transported from school to school. These collections were made to harmonize with the work in the different grades. This method was found to be very unsatisfactory because the teachers invariably desired to keep the collections permanently. The next and more successful attempt (which is still being continued), was begun after conference with the Superintendent of Public Schools of Philadelphia by inviting all the teachers of the city to bring their classes and schools to the museums to listen to lectures on commerce and geography, selecting from lists of subjects given them such as they desired to have their school or classes hear, and arranging a date with the museums at which time this selected lecture could be given.

Our first work was begun in February of 1906. From that time until the close of the school year, in June, about 10,000 children with some hundreds of teachers attended these selected lectures.

The subjects covered some twenty-five different countries and ten or twelve other topics not geographical in character, such as the cotton interests of the United States, or the cotton interests of the world, or wheat, or sugar, or coal, or forestry, treated in the same way. Also lectures on beverages, including tea, coffee, and chocolate; or fibers, including cotton, flax, and wool.

The work was conducted in the following manner :

The teachers were recommended to bring only small classes of from 50 to 100. The length and character of the lecture depended upon the grade of the class. After the lecture these classes were divided up into small squads and taken in hand by the museum curators and conducted through the exhibits representing the country on which the lecture had been given, the exhibits and products being thoroughly explained and discussed by men who were perfectly familiar with the subject in hand.

During the past year, by previous engagements for times and subjects, we have lectured on many topics to more than 8,000 pupils and 300 teachers, coming from 60 different schools of the city. This work we are continuing year after year, hoping finally that the museums instruction may become a part of the school system of Philadelphia.

For six years the Philadelphia Museums has been conducting, under state appropriations, a special educational work for the benefit of the study of commerce in all the leading high schools of the state of Pennsylvania. For the purpose of carrying on this work we made up a collection of products and materials for distribution coming from different countries, which more or less adequately represented an epitome of the commerce and trade of the world. This collection, including 110 8 x 10 black and white photographs showing processes, customs, habits, and costumes of the people of the world, the back of each photograph filled with information describing accurately the scene depicted and its relation to commerce and the country which it represents ; between 30 and 40 maps of distribution of products, and a number of other pictorial illustrations together with hundreds of objects, classified in series, all attached to accurate geographical and commercial information, has been sent out and installed in cases built for the purpose in about 1,200 schools in the state of Pennsylvania. The collection was, in every case, presented under the state appropriation, to be the property of the school where it was installed.

The museum is continuing this work, and from time to time supplementing what has been sent out to different schools by sending other material.

For the next two years the state has made an appropriation of \$20,000 for this work. This year the museums has planned three

smaller collections of different sizes to be placed in grammar and elementary schools of lower grades throughout the state, so that no elementary school need be without the means of making some simple reference in its courses to commercial matters from a scientific standpoint. There are many thousands of schools in the state of Pennsylvania which should avail themselves of these different collections.

Benjamin Ives Gilman.—"I have been wondering as I have been seated here whether it is not time for this Association to consider the question of forming a directory of the museums of this country. The information given by Dr. Wilson is of great interest to me, and is, I imagine, new to most of those who are present. The thought has occurred to me that the preparation of a directory showing what museums are in existence in America, and along what lines they are working, is highly desirable."

L. W. Jenkins.—"A directory of the museums of the United States, prepared by Mr. F. J. W. Merrill, was published by the New York State Museum some three or four years ago."

Benjamin Ives Gilman.—"I do not know that publication. It strikes me that much valuable information could be collected through the medium of such a publication."

L. W. Jenkins.—"The directory published by the New York State Museum did not include, I think, museums of the fine arts."

Mr. P. M. Rea.—"Such a directory, as has been suggested, should include rather more than was included in Mr. Merrill's report. That report, while useful, conveys very meagre information in reference to many institutions, and is little more than a list of names."

"Recurring to the paper of Dr. W. P. Wilson which has just been read, I would like to ask what relation his institution holds to the various departments of the government of the state and of the United States. I should like to know if the activities of his museum overlap or supplement in any way the work being done by state and national agencies."

Dr. W. P. Wilson.—"The Philadelphia Museums is doing work which the United States Government could not do. We have entered into relationship with the various chambers of commerce, not only in this, but in foreign countries. When we write for information it is freely given to us. If we wish material for examination or in exchange we readily get it. If a department of the government

were to undertake to do this the matter would become immediately a subject of official correspondence and there would be delay and even failure. An agency which is not distinctively governmental can work along the lines upon which we are working far more rapidly and far more successfully. Whenever you enter the field of governmental activity you enter a territory overlaid with red tape in which the feet presently become hopelessly entangled. The Bureau of Commerce and Labor had not been established when our work was begun; the Bureau of American Republics had not undertaken the work which we are doing extensively. We are on friendly terms with the Bureau of Commerce and Labor. We stand in relation to a multitude of important commercial houses in foreign countries. We favor them by giving them all kinds of information which they desire, treating them as impartially as possible, and in return we ask for information, when we require it, and this is most carefully collected and given to us. I think it would be impossible for governmental agents to do work as accurate as that which we are doing."

At this point the reading of papers and their discussion was interrupted in order to allow Dr. George A. Dorsey, the secretary of the Council, to present a report from the Council.

The report recommended:

1. That the invitation of the Field Columbian Museum, the Art Institute of Chicago, and the Chicago Academy of Sciences to hold the next meeting in the city of Chicago on May 5 to 7 be accepted.
2. That the election of officers to serve for the ensuing year be held this evening at 8:30.
3. That a volume of Proceedings be published, and that the president and Dr. W. J. Holland and the secretary, Dr. George A. Dorsey, be a committee to prepare the records for publication.

The various items in the report were taken up seriatim.

The recommendation fixing upon Chicago as the place for the next meeting was unanimously adopted.

The Association then upon motion proceeded to ballot for officers for the ensuing year. The following were elected:

President—Mr. William M. R. French, Art Institute of Chicago.

First Vice-president—Dr. W. J. Holland, Director, Carnegie Institute, Pittsburgh.



THE FAIRBANKS MUSEUM OF NATURAL SCIENCE, ST. JOHNSBURY, VERMONT

Second Vice-president—Mr. F. A. Lucas, Curator-in-chief, Brooklyn Institute of Arts and Sciences.

Secretary—Mr. Paul M. Rea, Curator of the Charleston Museum, Charleston, S. C.

Treasurer—Dr. W. P. Wilson, Director, the Philadelphia Museums.

Councillors (to serve for three years)—Dr. H. C. Bumpus, Director, the American Museum of Natural History, New York; Dr. George A. Dorsey, Curator of Anthropology, Field Museum of Natural History, Chicago.

A paper illustrated by lantern slides was presented by Miss Delia I. Griffin, of the Fairbanks Museum of Natural Science, St. Johnsbury, Vermont, upon

THE EDUCATIONAL WORK OF A SMALL MUSEUM

Certain problems can be worked out where one has personal touch with the community, which are impossible in a large city. How a few of these problems are being solved by the Fairbanks Museum I wish now to submit to you.

A generation ago a barefoot boy on the hills of Vermont became interested in birds and flowers, and started a home museum, like Rollo of story-book fame. His interest, his collection, his years, and his wealth increased, until seventeen years ago he erected the Fairbanks Museum, endowed it with funds sufficient to keep it running perpetually, and arranged for a Board of Trustees to manage it.

Today, although Col. Fairbanks has passed to the Great Beyond, his spirit of interest in children and of love for all that lives in God's open air is the controlling motive of the institution which he founded, and its activities all follow lines which he suggested.

The museum, situated in northern Vermont, is in the midst of a farming community, and directly in a manufacturing village of 7,000 people. One thousand men are employed in the scale shops. Most of them own their homes, possess small kitchen gardens, and are typical of the American workingman at his best. In this environment our chief aim is to bring brightness, breadth of view, and interest in the artistic and elevating side of life to the children of these men.

This purpose is largely accomplished by means of lessons in nature study, which are given to the school children of the town. One week out of each month, the museum class-room is the center of interest. The groups of children, each accompanied by its teacher, come from the public schools, and lessons are given them by the Director of the museum—lessons, not lectures. The pupils have as active a part as they would in any school exercise, asking and answering questions, and thinking out the problems which flower or bird may suggest. In general, also, they provide the material for their study—flowers or plants, seeds or fruits, or the common minerals of the region. Usually some preparation in the line of out-of-door study of the plant in its environment or its relation to insects, is requested when subjects are assigned for the lessons, a week in advance. Perhaps instead, an experiment is suggested to follow the lesson, and the young people, after studying lime rocks, make mortar and plaster, and after a series of lessons on gypsum, make casts of various objects. One class this winter made a cast of the hand of the prettiest girl in the room, and while it may not have been a success from an artist's point of view, that class gained an intimate knowledge of the properties of plaster-of-paris, which will never desert its members.

For this same series of lessons, the museum contributed all its variety of gypsum specimens, and the beauties of satin spar and alabaster added much to the pleasure of the students. Often the entire class is taken directly to the cases which are opened, and all specimens which can be handled without injury, are given to the pupils.

Among the subjects studied at these lessons are the following: "Seed Distribution," "Crickets and Grass-hoppers," "Dry and Fleshy Fruits," "Caterpillars, Moths, and Butterflies," "Golden-rods and Asters," "Ferns," "Preparation of Trees for Winter," "Defensive Organs of Plants," "Tree Buds," "Germination of Seeds."

From 150 to 200 class lessons are given each year and they are supplemented by school work carried on by the teacher. In order that this may be done in the best manner, teacher's meetings are held frequently during three months of each year.

Once a fortnight, after school hours, the teachers come by grades and are given definite instruction in the line of work laid out by the Director. Both subject matter and methods of teaching are given,



THE FAIRBANKS MUSEUM OF NATURAL SCIENCE. MAIN HALL, THE NAVE LOOKING SOUTH

and books and scientific publications are read or loaned to the teachers.

By request of the state superintendent of schools, an "Outline of Nature Study" has been written by the Director, and this, printed by the State Board of Education, is in the hands of every teacher in the state.

Second only to the class work in interest and popularity, are the bird walks which are conducted in the following manner: From the middle of April to the end of June, groups of children about a dozen in number, meet at the museum steps at seven o'clock. They are at the school building ready for school at nine and meanwhile have tramped from one to two miles finding the spring birds. Anywhere from fifteen to forty birds may be seen and heard, according to the weather conditions. Some member of the museum force accompanies each expedition, and every child who wishes is given an opportunity to go about four times a season. Frequently children come to the museum during the day to closely examine a bird that could not be well seen during the morning tramp, and their interest is increased by a small case placed in a prominent position near the entrance door and containing the newest bird arrivals. Only thirty-five specimens are allowed in the case at any one time, and both children and adults who are studying birds for the first time find it far easier to identify a perplexing bird visitor from this case than from the larger general collection.

These birds are also loaned to the schools, but there is comparatively little need for loan collections, as owing to the compactness of the town, the children can so easily come to the museum itself.

An interesting outgrowth of the bird walks is the Junior Audubon Society which meets at the museum once a month, from January to June, in two divisions. Each section has its child officers, who preside, read reports, make motions, and in every way carry on the business of a society with much dignity and solemnity, besides presenting a literary program.

The June Meeting is given up to a bird contest for determining which child in each division is most thoroughly acquainted with the birds. The prizes, five-dollar gold pieces, are offered by one of the bird-loving citizens of the town. For a month before the contest every hour of the day sees eager children in front of the bird cases and the words most familiar to the director are "Please can you tell

me what this bird is? He has a brown back"—and then follows a description, remarkably accurate when one remembers the age of the observer, and usually the members of the office force with wits sharpened by constant guessing are able to lead the questioner to a specimen and receive a satisfied "Yes, that's just the bird."

The interest in insects is not so universal as that in birds. Still, each September and October sees the caterpillar boxes well inhabited by the "crawlers" the children have brought. These cages are placed on tables in the main hall and are the center of interest during those months. The children bring fresh leaves daily and are very faithful in caring for their proteges. Their interest is keen when the chrysalids and cocoons are formed, and frequently most of the hours out of school are occupied in watching *cecropia* caterpillars fashion their winter quarters and fasten themselves in. And the pride of the individual child whose special crawler finishes his work in a day while another of the same kind takes two days for the task is interesting to see.

Much home observation is stimulated by this museum work, and during the late summer and fall all sorts of insects are carefully brought to the director for identification or to display, then carefully taken home and watched for future developments. One child of ten with a little help from his aunt, and with some special good fortune from Dame Nature, has followed the whole life cycle from caterpillar to caterpillar, of the white tussock moth and has now fifty or so young crawlers which have moulted for the second time.

The last large item of educational work to be mentioned is the flower table. From the time the first *arbutus* blossoms on a southern hillside until the witch hazel lets fall its crinkled yellow petals late in the autumn, a procession of wild flowers is to be seen in the museum. The specimens are arranged in clear glass vases, on tables in a prominent part of the hall. Frequently fifty specimens are displayed at a time, and often all the varieties of one flower are to be seen the same day. Last week the violet table held twelve varieties, all found within a five-mile radius of the museum, and each September our fifteen goldenrods are exhibited at the same time.

In the case of rare flowers, some of the orchids for instance, only two or three flowers are displayed, often with a note warning the public of the danger of gathering them in quantity and so aiding in their extermination. The literature of the "Wild Flower Preser-



THE FAIRBANKS MUSEUM OF NATURAL SCIENCE. A TYPICAL DISPLAY ON THE FLOWER TABLE

vation Society" has a place on this table, and many of its leaflets are taken by visitors.

All the flowers are labelled with both common and scientific names, and if a child brings a specimen, his name also appears. A large number of the flowers are brought by the children; many are gathered on the bird walks, and by the museum force when searching for herbarium specimens; and some of the rare contributions come from ladies, who, in their leisurely drives over the country roads of this vicinity, find these beautiful specimens.

This flower display is easily the most popular feature of the museum work. Visitors come to it first and linger by it longer than by any other exhibit; several invalids watch eagerly for the reports of it in the weekly papers; and the children, competing with each other to see which shall bring the largest number of flowers, gain a familiarity with the specimens and the fields and woods in which they grow. More valuable yet is the healthy influence which absorbs the children's minds and the love of nature to which they unconsciously grow.

The activities are not large, you see, but neither is the museum. It is, however, the home of every young person in the town, from the little four-year-old who refers to the giant cast as the "Humptydon" to the academy senior who studies the Brandon fossil fruits.

Every one has a personal sense of ownership, and rightly so, for Col. Fairbanks at the dedication said to the children, "I want you to understand from this time on, that this building is to be yours, and that you are to guard its interests."

And they do.

Dr. W. P. Wilson.—"This is the most admirable presentation of the work of a museum which I have ever listened to, and I am sure we feel deeply grateful to Miss Griffin."

Dr. A. E. Frost.—"I am from Vermont, and I lived in my boyhood in St. Johnsbury. I have been a resident of Pittsburg for thirty-five years. I well remember the time when the only thing known about St. Johnsbury was the fact that the Fairbanks scales were made there. I am glad that we have had a representative of the old town in Pittsburgh to tell about another feature of the life of St. Johnsbury. I have boyish recollections of Mr. Fairbanks. He took a kind interest in all youth. The beginning of his museum was

in the mansard of his residence, and he often took us there. It is to me an unexpected pleasure to hear of the manner in which those early beginnings have been subsequently developed. It brings back the memory of my early home in a very pleasant way."

Miss Anna B. Gallup, curator of the Children's Museum of the Brooklyn Institute of Arts and Sciences, then read a paper on

THE WORK OF A CHILDRENS MUSEUM

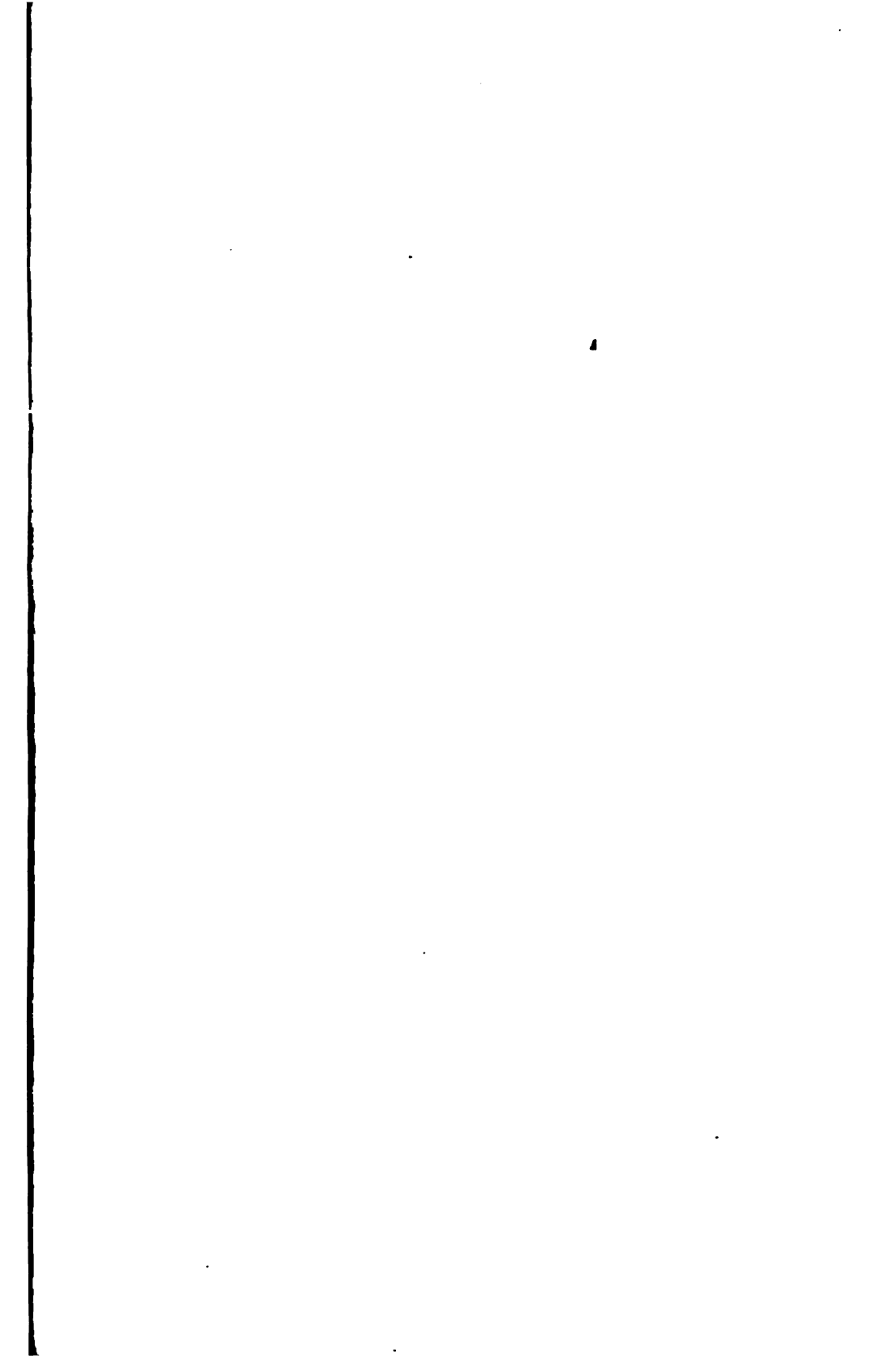
The Childrens Museum was opened in December, 1899, as a branch museum of the Brooklyn Institute of Arts and Sciences in the attractive residence of a beautiful suburban estate, which the city had taken as a public park, the Brooklyn Institute having originally leased the building as a temporary store-room for collections.

Upon the opening of the new Museum of Arts and Sciences, and the consequent transfer of the most valuable institute property, there remained a few insects, stuffed birds, and mammals, principally from Long Island, which were utilized as a nucleus of the Childrens Museum collections. Thus the work began with practically nothing except an empty building and the meager exhibits above mentioned.

The manifest pleasure with which children immediately availed themselves of the privileges offered, pointed to the necessity of clearly defined plans for expansion.

In outlining these plans the Trustees of the Brooklyn Institute expressed their purpose to form an attractive resort for children with influences tending to refine their tastes and elevate their interests; to create an attractive educational center of daily assistance to pupils and teachers in connection with school work, and to offer new subjects of thought for pursuit in leisure hours.

The aims and purposes of such a museum called—(1): For the preparation of collections which children could enjoy, understand, and use; (2) for an arrangement of material pleasing to the eye and expressive of a fundamental truth; (3) for briefly descriptive labels expressed in simple language and printed in clear readable type. There was also demand for a system of instruction which children would voluntarily employ.





MODEL OF A PORTION OF AN HAIDA INDIAN VILLAGE. IN THE GEOGRAPHY ROOM,
CHILDRENS MUSEUM, BROOKLYN INSTITUTE



MODEL OF A GROUP OF QUAKERS AT A QUILTING BEE. IN THE HISTORICAL ROOM,
CHILDRENS MUSEUM, BROOKLYN INSTITUTE

Progress toward the ends in view has taken place slowly but steadily. As a branch institution, the Childrens Museum derives its income for maintenance from the annual appropriation made by the city of Greater New York to the Brooklyn Institute of Arts and Sciences. In the enlargement of its collections it depends upon the work of its own museum staff for the collection of material, and upon the modeler, cabinet-maker, artists, and taxidermists of the Central Museum for highly specialized labor, while the money used in the purchase of new specimens is granted, by special appropriation of the Trustees, from a general Museum Collection Fund, composed of private donations and legacies.

After eight years of growth the Childrens Museum of today occupies the entire Bedford Park Building, comprising twelve exhibition rooms, a lecture hall, and a Childrens Museum Library.

In the exhibition rooms are collections of natural history, geography, United States history, and art, to which children and teachers make constant reference.

Our natural history collections are distributed in five rooms, and arranged for children of different ages. A room of "animal homes" contains the male, female, and nest of common Long Island mammals and birds. This collection is particularly attractive to little children. A synoptic room assists the normal and high school pupils in studying zoölogy, while the collections of amphibia, reptiles, and birds delight children of all ages. In the bird room such birds as the condor, lyre bird, cassowary, albatross, etc., are grouped in a case labelled "Birds We Read About," and appropriate quotations from the writings of poets and authors accompany each specimen.

Our insect collection contains a systematic series of the moths, butterflies, beetles, and other insects of Brooklyn and vicinity, each specimen accompanied with a label giving the common and scientific names, the sex, and the locality. General labels noting group characters are placed in each section. There are also little model groups picturing what insects do and special exhibits illustrating mimicry, protective coloration, and life histories. A hive of living bees, a colony of ants, and the various water insects in aquaria are of almost daily use to nature study classes.

In order to make our mineral exhibit pleasing to children we illustrate the economic uses of minerals by displaying mineral products with specimens. With quartz are amethyst and crystal lenses.

Flowers of sulphur, roll brimstone and matches, with the sulphur crystals form a part of the sulphur exhibit. Gypsum is shown with a plaster-of-Paris model, and pictures of mines and processes of manufacture are freely used. Brilliant and beautiful minerals are used for their aesthetic effect.

The museum historical exhibits began with old relics, and arms and weapons formerly used in the wars of our country. These have been chronologically arranged, supplemented with charts and pictures—and more recently with model groups to illustrate the period of colonization and settlement. Six of these groups are now installed, each representing one of the types of European colonists—Spanish, English, French, Dutch, etc.—who effected permanent settlement in the American colonies. There is something about these miniature scenes strikingly engaging to the child. They stimulate him to close and repeated observations and comparisons, and with the help of the childish imagination carry him back into the period to which they belong.

While charts, globes, and maps are much used in the geographic exhibits, the model group method has been adopted for bringing together the remote people of the world. By means of these miniature scenes human beings appear under extremely unlike conditions of climate and physical features, both of which determine appearance, dress, industries, character, and other distinctions.

The relation of man to his environment, as shown in his place of settlement, his occupation and industries, as determined by the climate and physical features of his surroundings, and his intercourse with his fellow men, are important relationships not always clear to children who study merely globes, maps, and pictures, lacking in that dramatic quality, which is an important factor in linking the childish imagination with what is new and strange.

Each scene chosen depicts the natural physical characters of the race represented. It shows the family in characteristic dress, the home and its surroundings, including useful domesticated animals, implements and tools, and men at work. We have begun this series of geographic groups with a choice of those peoples whose modes of life are least complex, since it is among such races that the dependence of man upon physical environment is most clearly shown, his food, clothing, and shelter often coming from a single source.

The important underlying principle to be emphasized in exhibits

of this character is that of relationship. The child is ever ready to put himself in the place of the liliputian being, whose environment he now sees spread out before his eyes. What his far-away brother has and what he can do, are to him important subjects, about which he asks many questions.

Besides the more important museum collections there are smaller exhibits, containing living plants and animals, which are frequently changed. These the children watch closely, often coming to the museum day after day to observe some pet animal.

We try to get in touch with children through the schools; for experience shows that the best results are obtained by coöperation with enthusiastic principals and teachers. Our exhibits are therefore correlated as far as practicable with the public school work, and lectures supplementing grade courses of study are regularly given during the school year. Pupils are informed of these lectures through the *Museum News*, a monthly publication which is mailed to the principals of the schools, and when once they begin coming to the museum they usually continue their visits.

Between the hours of 9 A. M. and 5:30 P. M. on every week day, and 2:30 to 5:30 P. M. on Sundays, when the museum is open, children are welcomed and encouraged to the fullest enjoyment of every attraction.

A Childrens Museum Library, which occupies two rooms in our building and forms a part of the museum work, contains about 5,000 volumes consisting of the best works on natural history in its broadest sense. The library provides books of information for visitors, and in offering books on the lines of school work forms a valuable school reference library adapted to giving assistance to teachers and pupils. The two trained librarians permanently in charge of the reading rooms enable visitors to consult books without formality or loss of time.

In the absence of official relations with the public schools the museum attendance is exclusively voluntary. Children and other visitors usually arrive with some definite end in view and the members of the staff endeavor to assist toward that end.

We try to give our visitors the same freedom and pleasure that they would experience in entering a delightful home, where every plan is for the enjoyment of guests. Members of the staff are always happy to escort visitors, to answer questions, take specimens

from the cases for closer examination, or tell stories to younger children. School boys and girls have learned that the museum will help them over many a hard task assigned by teachers, and thus the work of the museum has become as diversified as the individualities of its visitors.

Principals, teachers, and parents unite in their testimony as to the quickening influence of the museum on the mental growth of their children, and an increasing number of teachers find time to bring classes for supplementary half-hour talks. Additional credits in school are frequently offered to such pupils as give satisfactory evidence of having profited by their visits.

To measure the results of our work would be to trace its effect on the development of each child that has come within the influence of the museum for any length of time; but when a blind boy tells us that he feels as though he had entered a new world ever since he has been allowed to take the stuffed animals in his hand; when a bright-eyed youngster, returning from the country, convinces us, by his discriminating accounts of summer pleasures, that his enjoyment was enhanced by knowledge acquired at the museum; when a boy from Columbia University assures us that his first real interest in botany resulted from the spare moments he, as a high school lad, spent in our botany room, we feel that there is reasonable ground for encouragement.

Taking statistics as evidence of success there can be no question as to the value of a children's museum to our community. For the past four years the average attendance has exceeded 94,000 visitors. In 1906, 561 visits were recorded from interested teachers, and for the same period the attendance at our half-hour talks was 17,253.

Among these visitors 125 schools in Greater New York were represented.

The Childrens Museum has long since outgrown the limits of its present building. In two different months of 1906 the average attendance at each lecture was 120, and that in a lecture room which seats only 60 persons comfortably. The only procedure under these circumstances was to repeat the talk until every child had heard it. On one occasion when 500 children presented themselves for admission to the lecture, a line was formed where children stood for several hours rather than take the risk of a poor seat.

The library and exhibition halls, as well as the lecture room, are so frequently overcrowded as to seriously interfere with the comfort of visitors. The only practicable remedy for this condition of things must be a new building. Already the New York Legislature has authorized the city to build a new Childrens Museum as a cost not to exceed \$175,000, and with a structure thus adapted to present and future needs, the work can expand and the museum serve more efficiently the community whose interest in educational advancement has brought it to its present state of usefulness.

A paper by E. K. Putnam, acting Director of the Davenport Academy of Sciences, Davenport, Iowa, on "The Educational Work of the Museum of the Davenport Academy of Sciences," was read by title, owing to the absence of Mr. Putnam.

The Auditing Committee reported that it had audited the accounts of Dr. W. P. Wilson, the treasurer, and had found the same correct, and recommended the approval of the treasurer's report.

Adjourned.

SESSION OF JUNE 6, 1907

Morning

In the absence of Dr. Hermon C. Bumpus, the president, and of the vice-president, Mr. W. M. R. French, both of whom had been compelled to return to their homes, Dr. W. J. Holland, the second vice-president, took the chair.

Upon motion the invitation of Mr. Anderson H. Hopkins, the librarian of the Carnegie Library, to personally conduct the members of the Association through the library, was accepted, and the hour of three o'clock in the afternoon was fixed as the time for this visit.

Upon motion of Mr. Lucas it was

Resolved, That the American Association of Museums extends to the International Zoölogical Congress convening in Boston in August next an invitation to visit the museums represented by this Association, and to express as a body its congratulations to the Congress on the occasion of its visit to the United States.

Dr. W. P. Wilson then read a paper upon

A LIBRARY MUSEUM FOR USE IN THE COMMON SCHOOLS OF THE CITY

A large number of individual collections, each representing the leading industries, institutions, habits and customs, with products of a country, have been made up, placed in large telescopic, rectangular, canvas cases, and labelled on the end with the name of the country which each collection represents, in large letters. Thus we have on the shelves, like books on a library shelf, ten cases with "Japan" on the ends, all exactly alike, ten cases labelled "China," ten cases inscribed "Philippines," ten cases labelled "Mexico," and so on throughout the leading countries of the world. We have selected ten, thinking it a sufficient number to enable us to always have some of each country on the shelves.

When a teacher in any school is ready to teach her children about

Mexico or Japan or Australia or Porto Rico, she sends for the case containing the collection for that country.

I. The principal industries of Japan are the manufacturing of (1) Lacquer work, (2) embroidery, (3) cloisonne, (4) porcelain, (5) mattings, (6) leather work, (7) bamboo wares, (8) metal wares, (9) paper of many qualities, (10) carvings in wood and ivory, (11) painting and drawing, (12) silk fabrics, (13) cotton and woolen goods, (14) toys, and (15) straw and chip braids.

II. The forest products are lumber, bamboo, lacquer, and wax.

III. The farm products are rice, barley, and other grains, beans, silk, most important of all, tea, peanuts, lily bulbs, wax, peppermint-oil, menthol, ginseng, cotton, ginger, oranges, red pepper, persimmons, tobacco, rape, and other oils, sake or rice wine, etc.

IV. The mineral products are copper, sulphur, manganese ore, coal, iron, lead, silver, gold, petroleum, etc.

V. The fishery products are dried or salted fish, including bonito, anchovies, sardines, mackerel, salmon, fish oil, pearls, coral, fertilizers, cuttle fish, seaweed gelatin, etc.

These industries in the shop, on the farm, or on the sea, are nearly all well represented in the collection by specimens as well as photographs. This collection, coupled with some historical and commercial information, enables the teacher to make a more intelligent discussion of Japan, or any other country treated in similar manner, than could be done through ordinary methods.

These collections are drawn from the museum in the same way that books are drawn from a library. They are carried out, delivered, and returned at the proper times by the museum conveyance.

Such work as this, I am aware, has been extensively done in natural history in the city of New York by the American Museum of Natural History, but so far as I know has not been undertaken under the general lines of ethnology, commerce, and geography in any institution in the United States.

Dr. Wilson illustrated what he said by an exhibit of one of the circulating collections prepared by the Philadelphia Museums for use in the schools, the collection consisting of material illustrating the life and industries of Japan.

O. C. Farrington.—"May I ask Dr. Wilson whether exhibits such as this which he has displayed can be purchased?"

Dr. W. P. Wilson.—"We have, in a few instances, in response to the urgent solicitation of institutions, sold them collections of this sort, but we do not wish to make this a practice, as to do so might involve us in trouble with the State, which makes us an annual grant for the maintenance of this work on the part of the museum."

Dr. O. C. Farrington.—"May I further trouble Dr. Wilson by asking whether he experiences difficulty in getting back the collections loaned to the schools?"

Dr. W. P. Wilson.—"Our experience shows us that every teacher takes pride in keeping the collection loaned to his school in good condition, and in returning it in the same condition in which it was received."

A Member.—"How long is such a collection as the Japanese exhibit, which we have seen, allowed to remain in the custody of a school?"

Dr. W. P. Wilson.—"No school is allowed to retain the collection longer than ten days. Some schools do not require the use of the collection as long even as that. A good deal depends on the grade of the school."

Dr. J. E. Talmage presented a paper upon

LOCAL REPRESENTATION IN MUSEUMS

The remarks I am privileged to make on this occasion are spoken in the interest of our smaller museums, those of local status and service, rather than as applicable to the vast collections lodged in marble halls, or to institutions possessed of great resources. Yet in examining collections that are extensive, valuable, and pretentious, I am sometimes impressed by the lack of local representation.

A mistake commonly made by museum visitors, and not always avoided by officials in charge, is that of regarding as most desirable representation of things far-off or foreign, to the neglect of the near and the common.

This defect may be but an expression of that human peculiarity which impels us to yearn after the distant and the relatively unattainable, while ignoring the good that lies within easy reach.

Astronomy is the most venerable of the sciences; geology, which

deals with the stone, under our feet, is among the youngest. The child reaches vainly for the moon, and slumbers within the glare of the electric bulb, which, in its way, is no less a mystery.

In every neighborhood there is material of educational value. Consider the case of a museum located in a region of mountains. Does custom afford us any assurance that we can learn anything of mountains within the institution's walls? Lest it be argued that there is no need of such facilities in the presence of the everlasting hills themselves, let it be remembered that even the man of experience, the child of many years, is unable to comprehend and grasp the infinitely great, while a representation on a small scale may make plain truths which otherwise would never be recognized. You cannot bring a mountain into a museum room, but you can show its essential features, form, and structure by models, drawings, photographs, and other adequate illustrations.

But a few months ago I was traversing an interesting region in the far west—a picturesque valley, the floor of which once formed the bed of an inland sea. A town situated near the old coast line lies within easy access of shore phenomena in rich array. The town was proud of its schools and of its local museum. I was a visitor at the high school and witnessed a class exercise in physical geography. The instructor appeared worthy of his reputation as one well versed in the lore of distant lands. He knew of continents and oceans, and of rivers and mountains made famous in literature and history. The lesson of the day had to do with deltas. The teacher openly bewailed his inability to take his students to a delta, where they might observe for themselves its many interesting topographical and structural features; but sad to say, deltas were far away on the seashore. Yet that wise man climbed the gentle slopes of a typical lake delta every morning on his way to school. True it was a little one—convenient in size and otherwise admirable for direct observation and study—a sort of museum delta, if you please. Who of us can recognize the essential features of deltas as to form and structure by traversing the cane fields and cotton plantations of the Mississippi delta.

We learned but little as to the true cause of volcanic eruptions while vulcanologists confined their investigations to the greater and more terrifying of outbursts. Stromboli, a small volcano of relatively gentle action, has taught us more than Vesuvius or Krakatoa.

The earnest student and the skilled investigator have learned to observe and experiment on a small scale with the purpose of applying the knowledge so gained to greater things. To me a local museum collection appeals as an index to that part of the realm of nature there represented.

I was greatly interested in the account given by Mr. Rea relative to coöperation between schools and museums in the South. In the course of bird study he tells us the students are taken into the fields and required to find and describe the birds they are studying. I was much gratified to learn that the work did not end in this way, but that from the field the students were led to the museum where they studied more fully the specimens on the shelves.

Museum collections serve but part of their purpose if they are used only for display. They should serve as a constant incentive to study and research. Too often we content ourselves with the shell and care not for the seed within. You have heard of the oriental ruler who was much concerned over the waywardness of his son. He placed in the boy's hand a banyan fruit and asked him what he saw. The answer was, "A husk." "Tear off the husk; now what do you see?". "A shell." "Break the shell; now what do you see?" "Nothing." "Where you see nothing there sleeps a huge banyan tree."

In the glaciated region of our own country drift material may be looked for in every educational museum. Yet how uninviting and unattractive are the piles of subangular stones, masses of boulder clay, and striated bed-rock, without adequate guides in the way of catalogue, explanatory pamphlet, and study references. Consider how much more impressive and effective such material will become if the dynamic features exhibited by existing glaciers are demonstrated. But here arises the thought, how can we bring a glacier into the schoolroom or the museum? A working model of a glacier may be easily prepared. A channel of sheet metal four or five inches wide and four to six feet long may be constructed, straight or sinuous as desired. This channel, representing the canyon, is placed with the lower end resting upon the floor at a suitable angle, the upper end being connected with a deeper vessel in shape and size resembling an ordinary two-gallon measure, with the side cut away to afford free flow into the channel. This reservoir, corresponding to the cirque or amphitheater in which the snows accumulate at the

glacier head, is made to receive a quantity of stiff pitch previously broken into pieces about walnut size. Although the pitch is brittle is small pieces, it slowly descends the channel by a viscid motion. It is easy to demonstrate differential flow as well as the cause of crevasses and moraines.

Educational exhibits should be of moderate extent. Every specimen should be of value as an illustration or a demonstration of some lesson feature. The excellent rule by which we exclude superfluous material from museum collections in general is specially applicable to exhibits intended to be primarily used as aids to instruction. Mere addition of material of the same kind as that already in place may detract from, rather than add to, the value of the exhibit. One of the greatest of man's mistakes is that of confusing growth with development.

Growth is a mere accretion of substance; development is increase of function, capacity, and power.

The Chair.—"The next paper to be read, according to the program of the morning, was to have been presented by Dr. Charles H. Hitchcock, upon the theme, 'How Museums May Aid Comparative Ichnological Studies.' Dr. Hitchcock informed me last night that he would be compelled to leave on the early morning train, and is unable, therefore, in person to present his paper."

Upon motion the Association resolved that the paper be read by title.

A paper by C. W. Hall was then presented and read by title. It is as follows:

THE SCIENCE MUSEUM: A FACTOR IN INTELLECTUAL AND INDUSTRIAL PROGRESS

The museum has become an important factor in the life of American communities. It is a valuable aid for the instruction of children, a place of interest and education for the adult, and a necessity for the student of pure and applied science and of every art. It is in behalf of the student of science that I speak.

Those who began their scientific studies in America a third of a

century ago do not realize, without second thought, how the museum has grown into a necessity for the man of science. Then in every field of natural history the student had but to don his walking suit and spend a day or a series of days in the field to secure that which would give him continuous study for months and years; around the chemist lay problems so thick that selection of material was his first real serious study; indeed many a chemist can look back and see how he failed of fruition because he selected the wrong thing as the subject of his researches; the physicist had the principles of mechanics as established long before, the geologist had just seen the long contest between theological and geological opinion closed and proof accepted that the earth is the product of physical and chemical processes long in operation.

In the field of applied science, how little in the way of accomplishment bears date of a third of a century ago. The water-wheel and the engine were known; machines had come into use. Electricity was used, the telegraph was a success, and a cable across the Atlantic had just been laid. Such a measure as economizing in fuel had scarcely been thought of; a building or a bridge of steel was a phenomenon; it had occurred to but few that sanitary measures could be, nay should be, conducted everywhere, not only to arrest a scourge or eradicate a disease, but for the plain ordinary comforts of daily living.

Today quite different conditions prevail. In every activity of life we find fundamental ideas and principles made fast to scientific data. The collection of facts has been so extensive that the habit of thought among mankind has been changed. Objects and processes which a generation ago must be investigated are now so well known that they have become matters of dogma. In order to discover anything new—to add anything to the sum of knowledge already accessible to the qualified—a long pupilage is necessary. Observation must be continued for years; a wide range of associate data must be at hand.

From such illustrations—and they may be drawn from every field of scientific research—it is seen that conditions are rapidly advancing to that point when museums are a necessity for the highest work. It is not alone in the field of pure science that they must be developed; applied principles and processes must be set forth through collections showing both the failures and successes of those working

in the field in earlier days. Such an opportunity for comparison is essential first of all in laying down the lines to be pursued in further research. What was sufficient for the preceding generation was grossly inadequate a decade ago; and today it simply excites our wonder and admiration, that with so meager an equipment so much of accomplishment had been realized.

With what can be seen of past progress we must associate future development. No one who foresees conditions, already casting shadows before, can doubt an intenser intellectual life and an urgent need for a closer search into the storehouse of nature for supplies and a utilization of resources now useless through lack of methods of adaptation.

Glancing at the status of the Central West, we see that the vast forests of lumber, from the black walnut of Indiana and Illinois to the magnificent white pine of Michigan, Wisconsin, and Minnesota are so nearly exhausted that these states are importing to maintain their own consumption. Clay beds, cement rock, and all good quarry stone are being drawn upon more than ever before. Concrete and steel construction have become the controlling factors in building operations.

Men who know—and it is they also who own—tell us that there is today in the state of Minnesota an iron ore reserve of only 1,300,000,000 tons carrying 49 per cent. and upwards of metallic iron; in all the ranges of Michigan and Wisconsin there are only 150,000,000 tons, or a total of only 1,450,000,000 tons for the Lake Superior region of the United States. The present rate of output is near 40,000,000 tons per annum; hence, without considering the increased output sure to come, in but little more than the next third of a century, Lake Superior high grade ore will be exhausted and the low grade reserves of the east, south, and west will have to be drawn upon. That change in ore supply means a greater revolution in the metallurgy of iron and steel than the world has yet seen. That such a revolution has already begun is evidenced in the successful experimental treatment of certain refractory ores by electric processes recently announced from Sault Ste. Marie.

I appeal for the development of the museum. The term museum as here used refers to a repository of things that have a relation to science and technology. Such repositories are stimulating to the young, the middle-aged, and the old alike and out of the thousands

of visitors a few hundred become attracted by what is shown, and now and then one becomes an Atlas in the intellectual strength acquired and exercised in scientific work or in the exercise of an inventive genius which accelerates some industry which thereby becomes world-wide in its importance. Such an organization is a powerful factor in scientific and commercial affairs; the future will see it vastly more powerful than now. Everybody needs it as an educative force, and all scientific and inventive activity finds it a necessity.

How shall the demands of the future be met? Speaking from an acquaintance in the middle west, it must be said that but few communities have arisen to the measure of their needs. This situation comes from two important conditions:

1. There is as yet but little money available for the development and maintenance of museums.
2. The efforts already made are in nearly every case dissipated by gathering a little material along many lines.

Such a thing as a complete regional collection, a representative series showing the development of some science or the exhibition of inventive attainment along some particular line of mechanical progress is very rarely seen.

There are, however, exceptions. One exceptional case may be worthy of mention because it illustrates a point in the discussion:

From the early nineties until a comparatively recent date, the Minnesota Academy of Sciences had probably the most complete collection of the ethnography and the zoölogy of the Philippine Islands to be found in the United States. It was visited by scientific men of other continents and the islands of the sea; and this, because there was in this collection material which could not be seen even by visiting the Philippines. Many of its species had never before been recorded.

This collection should be so cared for and developed that for years to come it would be a center of authority in that line it was instituted to cover. Other collections could be made, as men and opportunity appear, that along other lines could become as authoritative as is this.

The practical solution of the problem of museums of science will be in coöperation. Every community will gather and conserve its local collections in science, technology, architecture, and art. Among

these collections will be many which have more than a provincial value. To develop such should be the aim of all engaged in the advancement of science and invention. Each museum will be characterized by material of a certain type. Let this type, if of value, be emphasized until it stands out as a conspicuous object of interest and stimulus to effort and thereby becomes authoritative in those problems which pertain to the advancement of industry and the promotion of civilization.

Mr. A. R. Crook then read a paper entitled

THE HISTORY OF THE ILLINOIS STATE MUSEUM OF NATURAL HISTORY

The history of the Illinois State Museum of Natural History may be of interest to the members of this Association because of points of similarity to other institutions which the museum presents, and because of the needs of other state institutions of like character.

The writer is acquainted with about a score of similar state institutions, and is impressed with the necessity of a museum for every state in the union.

The materials that are here discussed were found in the state laws, geological reports, in two curators' reports, in letters and conversation with people acquainted with the institution. Unfortunately the records are fragmentary.

If the records of the various state museums in the country were presented to us, doubtless many facts of interest would be observed, and the institutions would be stimulated to work more aggressively for the accomplishment of the purposes of their foundation.

The museum under discussion began with the enactment of a law in February, 1851, establishing a geological survey. Its history therefore covers a period of fifty-six years. At first it was a part of the survey, but after the discontinuation of that organization it was established on a separate basis. This was in 1877.

Thus geology was the science that led to the establishment of the museum and caused its vigorous growth. Other sciences, such as zoölogy, botany, and archeology have been secondary, chronologically and materially, but of later years their importance has increased.

The first man to be chosen as state geologist was a doctor of medicine, J. G. Norwood, a native of Indiana, who was thought by the committee to meet the somewhat naive requirements of the law which said that the appointee should be "a geologist of known integrity and practical skill." Doctor Norwood had been assistant geologist under R. D. Owen on a geological survey of Iowa, Wisconsin, and Minnesota, and had just written a report, which was his most extensive work, either before or after that time. The writer has found a dozen papers from his pen.¹

Norwood considered it to be of prime importance to assemble materials from which to work, and for this end began to form a museum, July 29, 1851. He was ably assisted by Anthony Varner, who died shortly after, and by A. H. Worthen, who for many years was connected with the work and at his death was one of the most widely-known geologists in the state. So vigorously was the work of collecting prosecuted, that at the end of two years the collection was pronounced "unequalled in this country." Owen said of it: "I consider it the finest collection ever made in the same length of time on any survey that has come within my notice."

The collection at this time was in New Harmony. The inappropriateness of such a location was soon realized, and consequently in December, 1854, the specimens were packed in boxes to be sent by boat down the Wabash 40 miles to the Ohio, 120 miles down the Ohio to the Mississippi, 140 miles up the Mississippi to St. Louis, from thence by rail 100 miles to Springfield. But cold weather filled the rivers with ice and the museum did not reach Springfield till the following April (1855). Even then it was given a cool reception since no place could be found for housing it. Finally it was stored in the Supreme Court room in the building which at that time served as State House. In a few months, in order to make room for the approaching session of the court, it was moved to the Senate Chamber, where it was made accessible during the winter of '55 and '56. During the summer it was moved to the new arsenal building where new cases and drawers were provided.

But unfortunately the building was not heated and not only did the workers suffer, but their reagents and ink froze, and consequently during two or three months the work was given up entirely.

¹ For full list of his writings see "History of the Ill. State Museum of Natural History, A. R. Crook, Springfield, 1907.

Such were the obstacles encountered by Dr. Norwood—the necessity of moving the museum three times, finally alighting in a place unfit for work; the newness of the field, there having been practically no geological work done previously in the state; and finally the handicap of small appropriations—from \$3,500 to \$5,500 per annum only being allowed for all expenses, including, salaries of geologist and two assistants, traveling and office expenses, and publications. In the face of such obstacles, even if the worker were energetic and competent, there would be danger of criticism from people ignorant of the difficulties under which the work was done. After six years' work there being some dissatisfaction with the results shown by the survey, a committee of nine legislators was appointed to investigate the work and reported that Dr. Norwood deserved "great credit for the faithful attention which has been bestowed upon this branch of his duty" (the museum).

In reply to a request from the committee for his opinion of the museum, the state geologist of Missouri, G. C. Swallow, wrote: "The collection is very large and contains a great variety of minerals and fossils. . . . When properly arranged and set up in a suitable room, it cannot fail to be a source of pride and gratification to every citizen of Illinois. . . ."

In spite of this commendation the governor's message reads: "From the unsatisfactory progress made, however, and from the fact that nothing in relation to the survey had ever been published or even prepared for publication (with the exception of a pamphlet of a hundred pages, the publication of which was obtained by the state officers after much effort and within the last eighteen months) it was deemed essential to reorganize the corps. This was done last spring (March 22, 1858) and A. H. Worthen was placed at its head."

In behalf of Dr. Norwood it might be noted, however, that even his talented successor did not bring out his first report until 1866—that is, after eight years in the office, having Norwood's seven years' collections to build upon and an especial appropriation of \$21,000 for printing, etc., as well as his own fourteen years' experience. This does not detract from the credit of Worthen, but implies that Norwood was expected to make bricks without straw. Creditable work of that kind requires both time and money.

There is something of the irony of fate in other features of the

change. The originators of the survey could not sufficiently emphasize the importance of having a survey which should be, as they termed it, "practical." The geologist was to be a man of "practical skill," his reports were to be "purely economical," "strictly of an economical character," etc. As it happened Norwood wrote more often on palaeontology than upon anything else, and Worthen's work was more than half palaeontological in quality and three quarters so in scientific importance. The same is true of the other curators. This was natural because at that time palaeontology offered the most attractive field for original work, and it would have required a very high legislative fence to keep the workers out.

During the early years of Worthen's incumbency the museum remained in the arsenal. It was then moved to a room in the Masonic Hall. Concerning this Worthen says: "These specimens, now comprising the largest and most valuable State Cabinet in the West, are kept in a rented room. . . . Permit me . . . to call your attention to the importance of securing a suitable fire proof building for the reception and display of the specimens."

In spite of this suggestion the museum remained in that room and a fire did partly destroy the building. How much damage was done to the specimens it has not been possible for the writer to ascertain. But in 1875 Worthen writes: "The large collection of geological specimens accumulated by the survey remains in the condition it was left by the fire in the Masonic Hall building, where it was formerly kept, no proper place having as yet been provided for its reception. . . ."

From 1863 to 1870 Worthen, in carrying out the provision of the law of 1851 requiring the distribution of typical collections of duplicates among educational institutions of the state, sent specimens to Prairie City Academy, Rockford Female Seminary, Monmouth College, Normal, Lombard, Wesleyan and Northwestern universities. Letters to these institutions inquiring about the collections yielded information to the writer from Northwestern University only. The collection sent there entered upon the record books of that institution September 8-15, 1871, by Professor Oliver Marcy in characteristically accurate manner, consisted of 348 fossils and 52 rocks. If like materials were sent to all seven institutions the number would be 2,800 specimens. Worthen found the work too large a drain upon his time.

By the adoption of a new state constitution in 1872 the appropriation for the state survey was abolished, but by special appropriations the work was provided for till 1875 when it was discontinued, and the fine gentleman and scholar who 'for a score of years had given it his time and strength was left without employment and without remuneration.

However, the museum materials were a visible quantity, and even the opponents of "visionary science" could see that the museum should be cared for and consequently the friends of such enlightenment and culture as geological work and natural history studies represent were able to pass a law providing for the establishment of a "State Historical Library and Natural History Museum." The law established the institution, set aside certain rooms for it, named the trustees, stated the duties of curator and librarian, provided for moving specimens, for distribution of duplicates, for transfer of material from another museum, and made appropriations for carrying the requirements into effect.

An interesting circular "To the Scientists of Illinois" was sent out by Worthen and S. A. Forbes, Director of the State Laboratory of Natural History, inviting their support and coöperation in enlarging the museum.

The most substantial assistance was rendered by the State Laboratory of Natural History, then at Normal. Professor Forbes sent to the museum its chief zoölogical materials, alcoholic specimens of fishes and reptiles, artistic casts of Illinois fishes, mounted birds and mammals—a buffalo, deer, bear, and smaller mammals.

In the early eighties the curator selected "a complete series of carboniferous fossils for the State Museum of Natural History out of the great mass of material brought together in the progress of the geological survey of the state. . . ." And as the years passed the orderliness and value of the collections were increased by diligent work.

This improvement availed but little since in the last years of Professor Worthen's life, against his protests and during his absence from Springfield, the museum was moved by ordinary laborers who had no more idea of the value of museum materials than Geronimo had of Shakespeare, and who threw things into inextricable confusion.

Of this move Dr. Josua Lindahl, who was Professor Worthen's successor, writes:

" . . . You may, however, get some idea of its chaotic condition when I tell you that the entire collections in the museum rooms had been moved in the last year of Professor Worthen's life, against his protests and in his absence from Springfield, from one of the upper floors down to the main floor of the Capitol by order of some higher authority who engaged a furniture moving concern to remove the whole museum, without the supervision of anybody who had the least idea of how scientific material should be handled. Only in exceptional cases were the labels fixed to the specimens, and none of these had any numbers written or painted on them. Labels and specimens were therefore shoveled into the drawers and show cases at hap hazard, and by no means always so that the labels belonged to any specimens in the same drawer. In the basement the condition was, if possible, still worse. There was no closed room assigned to the storage of the vast amount of valuable material accumulated in the course of about thirty-five years, but it was piled up in an open portion of the basement, and workmen of various kinds had been using the pile as a dump for rubbish under which I would never have expected such a treasury of valuable material as was finally uncovered there and removed to a separate room with door and lock, which I secured after much arguing. The assistant told me that Professor Worthen felt so grieved over the wreck of the collections in the museum rooms, that he could never attempt to remedy the havoc. His health was already broken, and after his death, some months later, I found the collections in such a condition as indicated. I devoted years of assiduous work to save what could be saved."

While curator, Worthen published no reports on the condition of the museum. The two bulletins which he brought out (Bulletin No. 1 (1882), and Bulletin No. 2 (1884) were descriptions of fossils. They were valuable contributions to the palaeontology of Illinois. And he was able to publish Vol. VII of the Geol. Survey Reports (1883). He was a field geologist rather than a museum man in the modern sense of the word, and it was fortunate for his reputation that such was the case. The partial destruction of a museum could not diminish his fame. Up to the time of his death more than two hundred thousand dollars had been spent for all purposes of the survey since its beginning. A very small portion of that had been

applied for strictly museum purposes and yet the results in that direction were gratifying.

Professor Worthen died May 6, 1888.

An account of his life and work is given by Bliss and White in the Appendix of Vol. VIII, Geol. Survey of Ill., pp. 3-37, and it may be sufficient here to mention a few facts only. He was born October 18, 1813, at Bradford, Vt., and received his education in the public schools and academy at that place. At twenty years of age he married and moved to Cumminsville, Ohio, now a suburb of Cincinnati, where for two years he taught school. Then in 1836 he became a merchant in Warsaw, Ill. But his avocation was the study of geology, and as the years passed his interest grew with the increasing size of his collections till finally science became his vocation, as we have seen.

Beginning by assembling geodes for which Warsaw is famous and using them as bases of exchange, and by indefatigable collecting he brought together one of the best cabinets of its kind owned by any private person in the west. He was connected with the museum longer than any of the other curators have been and brought to it its most unique specimens not by purchase but by his own diligent labor.

The excellence of his scientific work was recognized by fellow workers at home and abroad. He was a gentleman of the highest type both in his private and public life.

E. O. Ulrich, who was intimately acquainted with him, says concerning his character: "Its salient features were great love for scientific truth and justice, simplicity, unbounded affability, unswerving integrity coupled with an unpretentious yet strong desire to accomplish a useful career. His generosity and charity scarce knew bounds, while in his public and private life his frank and sympathetic nature and unassuming yet dignified demeanor won the esteem of all with whom he came in contact."²

Shortly after Professor Worthen's death a very fitting appointment was made in that of Professor Josua Lindahl, Ph.D., to the curatorship on June, 1888. The appointee, the son of an eminent Swedish minister, born January 1, 1844, at Kongsbacka, is a graduate of the University of Lund, where he pursued post-graduate studies and

² For full list of Worthen's writings see History of the Illinois State Museum of Natural History, A. R. Crook, Springfield, 1907.

taught for seven years. Before coming to this country he was assistant in the Royal Museum of Natural History at Stockholm. He was a member of a number of scientific expeditions—dredging expeditions in the Mediterranean, in the Atlantic—and zoölogist on an expedition sent to Greenland by the Swedish government. As secretary of the Royal Swedish Commission at an international geographical congress he visited Paris, and later, during the centennial, came to Philadelphia and was attracted by the country. He was knighted by King Oscar of Sweden for services to his native country. For the ten years immediately preceding his connection with this museum he had been professor of natural science at Augustana College where he had built up a fine natural history museum.

As an ofttime contributor to Swedish and American magazines he is well known and also for his translation into Swedish of Brehm's celebrated "*Illustriertes Thierleben*."

His active interest in science is further indicated, as was Professor Worthen's, by membership in numerous scientific societies. Until recently he was Director of the Cincinnati Society of Natural History.³

No better man has been connected with the museum than Lindahl. His first work upon assuming the curatorship was to put the museum in order. This proved to be an enormous task, since the materials had never before been in such confusion, and fortunately at no subsequent time has such disorder reigned.

While engaged in this work he found time to edit Vol. VIII of the Geological Survey Report, which Worthen had prepared for publication, but was prevented from completing on account of his death.

Preparations for the World's Columbian Exposition were being made throughout the state and Lindahl was instructed to collect and place on exhibition in the Illinois State Building materials that would properly represent the geology of the state. He began with vigor to bring together illustrations of the stratigraphy, the palaeontology, and economical geology of the state, and with the aid of several able assistants soon had a very creditable exhibition. Unfortunately, because of a change of the political party in power in the state, he was removed while in the midst of his work.

Lindahl, with the true spirit of the curator, at all times showed

³ For partial list of his papers see History of the Illinois State Museum of Natural History, A. R. Crook, Springfield, 1907.

himself to be a care-taker and preserver of the materials and interests of the museum. If his spirit had always prevailed the State Museum would at this time be much richer in materials than it is.

His successor, Wm. F. E. Gurley, was appointed in July, 1893. Mr. Gurley was born in Oswego, New York, June 5, 1854. His parents came to Danville, Ill., in 1865, and since that time he has considered that place his home. He was a student at Cornell University, and later became a prospector in Colorado, and for five years was city engineer at Danville.

He early acquired a taste for geology and began to make a palaeontological collection and library.

As to his tastes and his work while connected with the museum, Mr. Gurley says:

"From the moment I first became interested in the subject of geology, I set to work accumulating a palaeontological collection and library, and it was my ambition to place myself in a position financially where I could 'settle down' and devote myself entirely to this subject.

"When a child of six years, I was rendered totally blind through sickness, and after a period of several months partly recovered my sight. I never fully recovered, and during my entire life have been subjected to much inconvenience from this source.

"During the last year I was curator my eyes failed materially to such an extent that it became impossible for me to read common newspaper 'print' without the aid of a magnifying glass, which was extremely tedious and very unsatisfactory. In due course of time I became convinced that the failure of my sight was permanent, and I was forced to lay aside all ambitions of a scientific nature, it being impossible for me to attempt anything of a 'technical' sort."

Mr. Gurley is a charter member of the Geological Society of America and a fellow of a number of scientific societies at home and abroad. At present he is Curator of Paleontology in the University of Chicago.

The Bulletins which were published by Gurley and Miller deal with the same line of work that claimed the chief attention of Norwood and Worthen and show that in spite of the demand for "purely practical" work made by the legislature, work chiefly of scientific nature was produced.⁴

⁴For list of Bulletins see History of the Illinois State Museum of Natural History, A. R. Crook, Springfield, 1907.

During Gurley's incumbency the museum made its customary move—this time from the first to the third floor of the State House.

It may have been from the point of view of the protection of the specimens, wise and desirable, to donate to the University of Illinois the materials brought together by Curator Lindahl for the World's Fair. But from the point of view of the museum it was detrimental. The transfer from the first to the third floor was a step backward, as the new quarters were more contracted and were partly used as committee rooms by the legislature.

The next curator was Mr. C. H. Crantz, who was appointed in 1897 owing to a change in state politics. He is a native of Sweden and at the time of his appointment was in business in Chicago.

In 1903 he published a report of the museum. The move which came in his incumbency saw the transfer of the collections from the State House to the arsenal. A few more square feet of space were gained, but at the expense of dignity and beauty in the surroundings. The curator was able to bring all the zoölogical specimens under glass. But the only arrangement possible is that allowed where every square inch of space must be utilized.

In 1905 a new geological survey was organized under excellent provisions and leadership. Already it has produced valuable results. The only formal relation between it and the museum is expressed by the clause, "The whole or part of such material may be placed on permanent exhibition in the State Museum of Natural History at Springfield. . . ."

The present curator was appointed September 15, 1906.

CONCLUSION

In reviewing the history of the museum a number of facts come prominently to view.

First, men of scientific instincts and activity have had the work of the museum in charge. They have added to scientific knowledge generally and have built up the museum in particular.

Second, as a result of their abundant labors much valuable material has been brought together.

Third, the museum does not begin to contain the collections that it should contain. It has suffered by fire. It has been moved nine times without having reached a location in any degree suitable either

as far as space, light, dignity, or beauty are concerned. Money that should have been spent for materials has been used in moving.

Two of the curators, Worthen and Gurley, were ardent collectors before coming to their office, and during their incumbency continued collecting for themselves. At the time of their leaving the curatorship they were criticized because of the size and value of their private collections.

It was urged that their energies as collectors should have been turned wholly toward building up the State Museum, and that if such had been the case the museum would have been much richer. On the other hand it was said that the state was an unjust employer, failing for two years to pay one curator and turning off the other without just cause.

The state neither properly prized nor cared for the valuable materials which were brought together as the result of painstaking and arduous labor.

However, by some arrangement, those materials should have been saved for the state, and the most appropriate place for them is the State Museum. There should be a law whether written or unwritten that no curator should collect for himself. It might work hardship for the curator, but it would be for the proper advantage of the institution which he served.

The museum has had a long and eventful history. It has filled a place of usefulness, but the opportunity which lies before it is far greater than that which is past.

To use the opportunity and meet the obligations which are upon it will require the interest and help of all those who are in any degree responsible for its conduct.

To advance in utility and perfection it needs the hearty sympathy and support of the legislative committees which provide its finances. It needs the coöperation and careful thought of its trustees. When these are granted, the museum staff, by skilful and diligent application, may be able to produce a museum even more nearly approximating such an institution as should represent the great and prosperous state of Illinois.

The museum should preserve the vanishing types of animals and plants of the state. It should represent the history of the state as far as nature is concerned. It should be a place of entertainment of the highest sort.

Throughout the United States the value of museums as places of entertainment and education is being more appreciated. It is coming to be realized that museums supplement schools and libraries. They often appeal first to people who are not influenced by other sources. They are places of amusement of the highest type and the public deserve amusement. They are a means of education inasmuch as they show the world in which we live as it is and have a sane and wholesome influence on the public.

The museum field is a great and valuable field. As the state preserves her natural history treasures for the schools, she can at the same time afford every one, learned and humble, rich and poor, such a view of their environment as will enrich their intellectual equipment.

The Chair.—"This is the first time that the activities and work of state museums have been brought before our Association. It is a matter of gratification, I am sure, to have this phase of museum work presented. There are a number of important matters suggested by Mr. Crook's paper which might be made themes of interesting discussion. Our time, however, is limited, but I hope that at future meetings of the Association these questions may be taken up and thoroughly discussed."

The next paper presented was read by Dr. Charles C. Adams, of the University of Cincinnati, on

SOME OF THE ADVANTAGES OF AN ECOLOGICAL ORGANIZATION OF A NATURAL HISTORY MUSEUM

In the following discussion I have in mind primarily local natural history museums, of limited means, that devote their attention to the study and exhibition of the geology, vegetation, and animal life of their state or immediate vicinity. It has been customary in such museums to arrange the geological specimens according to the system of some synoptic or text-book, without regard to the influence of local conditions or environment upon the material. The plant and animal collections and exhibits have received a similar synoptic or taxonomic arrangement. If, however, a comparison is made between

the exhibits and the reference collections in such museums, it becomes quite evident that the former, on account of their closer relation to the public, have responded more quickly to their interests and needs. It is therefore quite natural to expect that it will first be in the exhibits that we find a marked departure from the synoptic and taxonomic ideas toward ecological phases; at least this seems to be true with regard to plant and animal exhibits. At this point let us clearly bear in mind that ecological relations are those which relate organisms causally to their complete environment. It is of interest, however, to note that at the present time a marked change in this direction is to be seen in ethnological exhibits, where the influence of the environment upon the culture of peoples is clearly recognized. It is apparent that the general principles and methods of display along ecological lines has already reached a fair degree of development and are easily accessible, so that they only need correlation and adjustment in order to be systematically applied to the ecological problems of a local natural history museum. To be sure, there are many points of detail to be worked out, especially with regard to the storage and indexing of the collections, the correlation of the work of the museum staff, etc., but these are problems which can be solved as the occasion arises.

THE IDEA AND ITS APPLICATION TO EXHIBITS

So far as known to the writer, no local museum has been developed or organized primarily along the lines here suggested, and although many of the elements have long been in use they have not been correlated as here outlined. The subject will be taken up in the following order: First, the geology, because it involves the gross environment; next the vegetation; and finally the animal life. The primary or dominant idea or ideal in the following suggestions briefly stated is, that all *processes* of the physical conditions, the vegetation, and the animal life, should be completely and *genetically* correlated. The soils, rocks, minerals, topography, plant and animal societies, and even human affairs, are so intimately related and correlated that any important change will in time change all. This may seem at first glance to form such a maze of complexities as to reduce all phenomena to chaos rather than to order. To make these ideas clearer it is therefore desirable to present them in more concrete form, and yet avoid too much detail. First let us consider the application of this plan to the geological problems.

Geology.—The local geology should be considered in a broad sense so as to include the soil, rock structure, physiography, and geography of the region. Palaeontology would be secondary here and receive full treatment in connection with the history of the local biota.

Physical processes should receive treatment first and should be fully illustrated by both specimens and photographs, as far as the vicinity will allow. The local weather should also receive adequate consideration at this place. In the organization of the general geological principles, and for an abundance of suggestions, reference should be made to Van Hise's "Treatise on Metamorphism," and Chamberlain and Salisbury's recent "Geology." The local work should be carried out in *much detail*, with numerous specimens, contour and relief maps, photographs, etc., so that the public or student can easily receive a good idea of the local physical conditions and of the dominant forces and processes which compose them; for it should be remembered that it is in these features that we find the broad outlines of the local environment not only for plants, but also for animals—including man.

To build up collections and exhibits along such lines will necessitate considerable research, correlation, and an assembling of facts and principles, which, aside from purely educational and scientific purposes, would of necessity be of much practical value to the state or local community. Certain special subjects would require separate exhibits, such, for example, as the history of life at or within the given locality or area. This is a subject of importance, and of much local interest, and should be fully investigated and displayed.

Vegetation.—Building upon the foundation laid by the detailed study of the climate, soils, topography, geography, etc., resulting from the detailed and correlated results of the local geological work, a knowledge of the local physical conditions would be secured which should contribute much toward our knowledge of the forces and processes which have determined the present composition, arrangement, and mutual relations of the local vegetation. These features should be mapped, photographed, and illustrated by representative specimens, in such a manner as to clearly show their field relations, societies, the principles which control their successional relations, and their responses to changes in their environment.

Instead of the usual dried and pressed specimens, which arouse

so little interest and are of only restricted utility, all available methods of preservation should be used, and a special effort should be made to preserve them in such a way as to show the relations to their environment, their associates and their life histories. In other words, special collections should be made to show plant societies and their ecological relations. For guiding principles the work of Cowles and Clements should be consulted, as they furnish a wealth of suggestions; but the application of the principles must be worked out for the particular locality and will be sure to furnish abundant opportunity for original investigation. The entire application of these ideas to vegetational exhibits is yet to be worked out. Perhaps the most suggestive exhibits in this country, which will throw light upon these problems are the economic ones by Millspaugh in the Field Museum of Natural History. In addition to these major vegetational features, exhibits of special problems should be made, such as those of peculiar local interest or of educational value, as the evolution of certain groups of plants, plant associations, plant structures, and perhaps some problems of local economic interest.

Animal Life.—Upon the foundation developed by the combined results of the geological and vegetational work there should be developed a survey of the animal life of the region. This should be continued along lines similar to the other surveys and correlated with them in as much detail as possible. The representative forms of animals, their associations and relations to their environment, should receive detailed investigation and exhibition. The greater complexity of the animal problem over that of the vegetation could be greatly simplified by special exhibits, such as the evolution of animals (a subject sadly neglected in our American museums), growth and development of selected forms, geographical distribution, variation, heredity, seasonal color changes, moulting, etc. These are problems of very general interest and should, even at considerable sacrifice, be illustrated by the local fauna as far as possible. So far as I have been able to learn this phase has never received in this country the serious attention which its importance merits. In the current literature evolutionary processes are largely illustrated by exotic material, the authors ignoring or ignorant of that which is near at hand. Certain local interests should also receive special attention, such as the migrating birds, the local fish and game, prominent insect pests, etc.

Extensive synoptic collections and endless series of similar (to the public) specimens should be sternly relegated to the background or be placed, such as may be necessary, in drawer cases where the interested student may, if seriously inclined, have access to them.

One of the primary ideas, not only of the animal exhibits but of all kinds, should be to show that the moving power in science is to be found in the intrinsic value and interest of scientific ideas, in addition to their application to practical purposes. We consider the development of scientific ideas as the true measure of a science, and for similar reasons, ideas should determine the existence of every exhibit. Museum exhibits have suffered (among other things) from a poverty of ideas and a superabundance of specimens which show little, and are unintelligible to the public. Harrera of Mexico has expressed the application of such ideas to museums in the following manner: "In the museum of the future the specimen is the lacquey of an idea; whereas, in our present museums ideas are the slaves of specimens."

INFLUENCE UPON COLLECTIONS

The foregoing statements are primarily concerned with the direct influence of an ecological organization of a museum upon the exhibits, while in the present section I wish to emphasize its influence upon the study series or the collections in general. It is quite evident from what has been said that the present collections in local museums are utterly inadequate to furnish material for the ecological exhibits. To develop such exhibits then will mean extensive field work and fresh collections with an amount of detailed field notes and observations rarely attempted by the old methods of collecting. One of the weakest points in museum specimens is the small amount of history accompanying each specimen. The older naturalists were satisfied with a label stating "North America," later with "United States," and even now we have thousands of specimens in the museums with only state labels. But this clearly shows the trend of the change and we are now reaching the place where detailed field notes must accompany each specimen. We may not wish to go to all this trouble, and many will resent it, but there can be no doubt about the ultimate result in this respect. A change in this direction will be in perfect harmony with one of the leading advances in museum methods, and an ecological organization would certainly favor and reinforce such a change.

Taxonomic work and ideals have in the past dominated the biological work in the museums, and most of the large ones even today. The current methods of taxonomy, which appear to some to have long since reached the "point of diminishing returns" as far as many general biological ideas are concerned, do not make the urgent demands for detailed notes on environmental relations as does ecological work; and this gives additional weight to the latter. While material collected for ecological purposes will also serve for taxonomic work, the reverse is not as true. Taxonomic work has been dominant, and taxonomic phases do not attract the popular interest; it represents only a limited phase of scientific problems, and yet as valuable as it is, the time is coming when it will become less and less a conspicuous feature in museum work, not by extinction but by the growth of the other, perhaps ecological phases. The reference series in museums are, as a rule, grouped systematically so that such facts of ecological importance as are contained in such a series are so widely scattered as to escape even diligent search. What will be needed in the future will be at least two series of collections, a taxonomic one and an ecologic one. The latter must be developed at least to the same extent as the former. Much the same reasons may be urged for these two series as can be given for a subject index in a library.

Enough has been said to outline the relation of the suggested organization upon the basal collections—the study series. Still another important phase for consideration is the influence of such a change upon the museum workers themselves.

INFLUENCE UPON THE MUSEUM STAFF

There can be no doubt that one of the brightest features of museum work during the past thirteen years has been the great increase in the breadth of view and the responsibilities of museums. With this there has been a marked change in the type of men going into museums, so that today many of our ablest naturalists are to be found in them. Undoubtedly as long as museums were so cramped financially that workers were doomed to dusting specimens and an almost complete sedentary life many men were repelled by them. As soon, however, as ecological phases, with its consequent field work and expeditions, is made an essential part of museum activity, we

may look for still further changes for the better in the character of museum men. In a given field the opportunities available are certainly important factors in determining the character of the men who will enter it. For many kinds of investigations the mechanical grind of regular university hours are not only decidedly disadvantageous but practically forbid the undertaking of many lines of investigation which require continuous or very irregular hours of work; and except for limited periods resident work by such men is usually impossible. With the increased breadth of museums and enlarged opportunities for research the quality of museum men may be expected to greatly improve.

PRACTICABILITY

A few words should be said for the practicability of the above suggestions for ecological organization of a state or local museum. I hardly anticipate much criticism of the geologic features, as that part of the problem is apparently relatively simple, although some geologists might object to geology being subordinated, in a way, for purposes of organization, to a biological scheme; but when it is remembered that by ecology is meant the relation of organisms to their complete environment it seems that with such latitude there should be room for all necessary freedom. At the same time it should be remembered that the classification is primarily based upon *processes*, as the ecological work is all planned upon that principle—an ecological expression being largely one of convenience as its method is perhaps more generally understood than that of processes.

With regard to the vegetation there are greater practical difficulties, but with commercial museums, forestry exhibits, and economic botanical exhibits like that of the Field Museum of Natural History, one cannot help but believe that all that is needed is a man of botanical resources to solve the difficulties here involved.

With regard to the animals, that part with which I am most familiar, there is no doubt in my own mind as to its feasibility. When one notes the marked ecologic advances in museum methods along some lines—the animal groups and the ethnologic exhibits—it is seen that for exhibit purposes great advances have already been made, although these advances have not yet reached, to an equal degree, the reference collections; nor have they reached the proportions which we may anticipate during the next few years. I venture

to predict that in the near future the ecologic features will become, at least in the newer museums, a very prominent—perhaps a dominant feature—not only in exhibits but also in the research and general activities of museums.

With regard to the reserve or study series of museums much the same remarks hold as for the exhibits. Whenever collections have been made for economic purposes, more or less of the ecological methods of preservation have been followed; this holds for both geologic, vegetational, and animal collections. The cataloguing, storing and labelling are thus seen to present no innovations; the necessary changes being largely in the nature of such adjustments and correlations as are intended to retain the intimate interrelations of objects and organisms to their environment, because minerals, rocks, plants, and animals are all influenced by their environment.

One can hardly doubt but that one of the most serious difficulties encountered by museums with limited means in the realization of such plans, will be to find men with enough originality and resources to develop consistently such plans, for while precedent will act as a general guide, many problems will be encountered that will require independent thinking. A museum to develop, in addition to increasing in size, must advance qualitatively as well as quantitatively. A real difficulty is to correlate these two tendencies, because as a rule, they are not combined in individuals and hence the organization of an institution must recognize this fact. If the quantitative criterion of value is dominant, both collections and facts may be accumulated without a just appreciation of their value and relations, while on the other hand if a qualitative criterion is dominant differentiation may take place too rapidly, and sufficient facts will not be accumulated, correlated, and hence only superficial work will be done. For these reasons a museum, or a department of a museum, may find it necessary to secure both types of minds in order to secure the correlated results.

In conclusion it should be stated that a local museum established upon plans similar to those just outlined could, by a natural growth and with increased resources, develop or spread from its local interests and become general or geographic without any rupture of its system. This is only possible because the basal principles are those of *processes*, and thus in character as universal as energy, from

which radiate the entire successions of cause and effect. To make the transition from the special to the general very little change would be needed in the geological series except that of extension; while for the vegetation the same principles hold and are easily correlated with such a treatment of vegetation in general as that given by Schimper in his "Plant Geography." In the case of animal life, however, while the same general principles will hold, their application is much more difficult, on account of the complexity of the subject and the lack of any comprehensive treatment of the principles involved. Such a relation as this clearly points to a field for research which can be cultivated to the best advantage only by those associated with museums. Such a transformation, from the local to the geographic, does not imply that plant and animal geography are synonymous with ecology, although there is a very intimate relation, because at the present stage of development ecology receives its best aid from the earth sciences on the one hand and general physiology on the other.

The Chair.—"I am sure that we have all been delighted and instructed with the presentation of this theme, which is an important one."

Dr. W. P. Wilson.—"There are a number of questions which might profitably have been discussed at our sessions, and I am a little disappointed that they have not been brought up for consideration. I propose that they be taken up at our next meeting. One of the matters that it seems to me ought to be discussed is 'The Suitable Adaptation of Buildings to the Work of Museums.' Another question which ought to be discussed is 'The Cultivation of Reciprocal Relations between Museums.' There ought to be a measure of affiliation between various kindred institutions engaged in our line of activity in order more particularly to stimulate the exchange of specimens. Some museums possess more material than they can use; others have often none of the same kind of material. Museums are educational institutions, and it ought to be a godsend for some of the poorer institutions to receive from the wealth of material at the command of others that which they would be willing to give. We ought to have a sort of clearing house system for duplicate material. A third point is 'The Advisability of Joint Arrangements between Museums for the Employment of Experts.' Some museums

are large enough and have sufficient means at command to do almost anything which they wish to do, but there are other smaller institutions which cannot employ the best men as experts to arrange their collections and properly instal them. Arrangements might be made between museums to secure the services of the ablest experts either in Europe or America to undertake the arrangement and installation of special collections. And there are experts, I have no doubt, who would be delighted to render such services, working at one museum for a few months or a year at a time, and then going on to another museum which might require their services. Still another question is that of 'United and Harmonious Effort between Museums in Securing Collections.' I know that united efforts have been made occasionally by some of our museums in different directions, arrangements being made by which joint expeditions have been sent to make excavations or to carry on explorations. Such harmonious coöperation is likely to be productive of results far more satisfactory than are achieved when institutions work in entire independence of each other and without regard to what others are doing.

"I hope that these hints which I have thrown out will be borne in mind and that some of these questions will be brought up for discussion at our meeting in Chicago."

The Chair.—"The remarks of Dr. Wilson which we have just heard prove the wisdom of founding this Association of Museums. The Chair ventures to suggest that the Chicago meeting will be one of unusual interest, and that many important and juicy subjects will be brought forward for consideration."

Dr. W. P. Wilson.—"I wish to advocate the idea of having at some suitable place a collection of exhibits illustrating the work of the museums of this country. The collections should consist of photographs and plans of the various buildings, photographs showing the installation of specimens. There ought to be collections showing the various systems of mounting and installing specimens, collections showing the construction of display cases and things of that sort. I am going to foster that idea, and propose to collect material not only from the larger museums, but from the very smallest museums in the United States. I may say again that I was particularly interested in the account of the work that is being done by the museum at St. Johnsbury, Vermont. I had never heard of the Fairbanks Museum until last night when Miss Griffin gave us her

illustrated account of the work of that museum. Its work is indeed wonderful in view of all the circumstances."

Upon motion it was

Resolved, That the American Association of Museums extends its sincere thanks to the Pittsburgh Plate Glass Company, the Carnegie Steel Company, the Western University of Pennsylvania, and to the Pittsburgh Golf Club for courtesies proffered and extended to us.

It was upon motion

Resolved, That this Association renews to Mr. and Mrs. Robert C. Hall its sincere thanks for their delightful hospitality so bountifully extended to the institution on Wednesday the fifth.

It was upon motion

Resolved, That the most cordial thanks be extended to the Trustees and Officers of the Carnegie Institute and the Carnegie Library of Pittsburgh for their most courteous hospitality and the graceful attentions which they have shown us, contributing so much to the pleasure and profit of this meeting.

Dr. F. A. Lucas.—"I desire to express my sense of the debt which I think we owe in this connection to Dr. Holland. I think I echo the sentiments of all who are here when I move that we express to him personally our thanks."

Dr. W. J. Holland.—"The gentleman is absolutely out of order."

Upon motion it was

Resolved, That a committee consisting of the president, the two vice-presidents, and Dr. George A. Dorsey, with authority to call to their assistance Mr. George Francis Dow and Mr. Lawrence W. Jenkins and others, be appointed to take up the question of the rates which are demanded by the postal authorities in the case of the publications of museums issued at irregular intervals.

Upon motion it was

Resolved, That it is the sense of this meeting that at future meetings the time occupied in the reading of papers should be limited to twenty minutes, unless otherwise ruled by the body in session, and that abstracts of papers should be in the hands of the secretary at least one month in advance of the meeting, and that this resolution be referred to the Council for definite action.

It was

Resolved, That the president and vice-president, the present and

the incoming secretary be appointed a committee to prepare for publication a full report of the proceedings of the present session.

Upon motion the Association adjourned to meet at luncheon as the guests of the Trustees of the Carnegie Institute at the Pittsburgh Golf Club.

Luncheon was served at one o'clock. At the conclusion of the luncheon a number of brief congratulatory speeches were made by different members of the Association who were called upon, and finally, upon motion, it was

Resolved, That the Association adjourn to meet in Chicago on May 5, 1908.

After adjournment the Association proceeded to inspect the Carnegie Library of Pittsburgh under the guidance of Mr. Anderson H. Hopkins, the librarian.

INDEX.

- Adams, C. C., Paper on "Some of the Advantages of an Ecological Organization of a Natural History Museum," 12, 170
Allegheny Observatory, Invitation to visit, 107
American Museum of Natural History, Resolution of Thanks to, 14
Art Juries, 107-123
Auditing Committee, 23, 107, 149
- Baker, F. C., Paper on "The Educational Arrangement of Natural History Museums," 10; on "Some Instructive Methods of Bird Installation," 52
Remarks by, 49, 59, 71
Resolution Offered by, 13
- Barbour, E. H., Paper on "The Nebraska State Museum," 12; on "The Private Museums of Nebraska," 12
- Beatty, John W., Remarks by, 113, 119
- Bird Records, a Method of Recording, Paper by P. M. Rea, 10
- Birds, Methods of Installing in Museums, 52, 57
- Boston Museum of Fine Arts, 91, 97
- Brigham, William T., Paper on "Shall we Explore the Pacific Now?" 12; on "Museum Collections as Viewed by Chinese, Japanese, Portuguese, and Hawaiians in Honolulu," 12
- Britton, N. L., Elected Councillor, 11, Resolution of Thanks to, 14
- Brooklyn Institute of Arts and Sciences, 144
- Bryan, W. A., Resolution offered by, 13
- Bumpus, Hermon C., Elected President, 10; Elected Councillor, 139; Remarks by, 29, 49, 58, 61, 75, 76, 103; Resolution of Thanks to, 14
- Caldwell, John, Remarks by, 117, 122
- California Academy of Sciences, 13
- Call for Meeting to Organize the Association, 1
- Carnegie Foundation for the Promotion of Teaching, Resolution Memorializing the, 13; Report of Committee on same, 35
- Carnegie Library of Pittsburgh, 27, 181; East Liberty Branch of, Visited, 133
- Carnegie Library and Institute, Resolution of Thanks to the Trustees, 180
- Carnegie Museum, 1, 28
- Carnegie Steel Company, Resolution of Thanks to, 180
- Charleston, S. C., The Museum of, 57, 61, 62, 77
- Charter Members, Resolution as to, 32
- Chicago, Invitation to meet in, 59; invitation accepted, 138
- Children's Museum of the Brooklyn Institute of Arts and Sciences, 144
- Coins, The Installation of, in a Public Museum, 123
- Committee on Affiliation with the National Educational Association, 35; Auditing, 23, 107; Memorializing the Carnegie Foundation for the Promotion of Teaching, 13, 35; on Organization, 9; on Repeal of Duty on Works of Art,

- 41; to Secure Fourth-class Postal Rates on the Publications of Museums Issued at Irregular Intervals, 36; appointed to Publish Proceedings, 180; on Program, 42
- Comparette, T. L., Paper on "Coins and Medals; Their Place in a Public Museum," 12; on "The Installation of a Collection of Historical Coins," 123
- Constitution of the American Association of Museums, 15; finally adopted, 33
- Council, The, 11, 139
- Reports, 36, 138
- Crantz, C. H., 168
- Crook, A. R., Paper on "The History of the Illinois State Museum of Natural History," 159
- Curators, should not collect for themselves, 169
- Davenport Academy of Sciences, 149
- Dorsey, George A., Paper on "The Aim of a Public Museum," 97; on "The Municipal Support of Museums," 131
- Remarks by, 34, 41, 74, 105, 118
- Resolution Offered by, 13
- Elected Secretary, 11; Elected Councillor, 139
- Ecological Arrangement of Natural History Museums, Paper by C. C. Adams, 12, 170
- Educational Work of a Small Museum, The, 139; of Museum of Davenport, Iowa, Academy of Sciences, 149; of Philadelphia Museums, 150
- Eigenmann, C. H., Paper on "Some Problems to be Solved by Museums as Illustrated by the Distribution of South American Fishes," 11
- Ethnological Objects, A New Method of Mounting, 60
- Evolution of Museums, 12, 82
- Fairbanks Museum of Natural Science, 139
- Farrington, O. C., Remarks by, 67, 73, 130, 151; Resolution Offered by, 13
- Filtering the Air in Cases, 66
- French, W. M. R., Remarks by, 59, 67
- Paper on "Installation in Swinging Frames," 62; on "The Present Jury System in Connection with Exhibitions of Contemporary Art," 107
- Elected First Vice-President, 11; President, 138
- Frost, Dr. A. E., Remarks by, 143
- Gallup, Miss Anna B., Paper on "The Work of a Children's Museum," 144
- Geography in Educational Museums, Paper by W J McGee, 9
- Gilman, Benjamin Ives, Paper on "Two Kinds of Museums," 9; on "Aims and Principles of the Construction and Management of Museums of Fine Art," 9; on "The Triple Aim of Museums of Fine Art," 91
- Remarks by, 38, 48, 75, 116, 119, 137
- Goodyear, William H., Elected Councillor, 11
- Greenman, Milton J., Paper on "Metallic Cases in Museums," 11
- Griffin, Miss Delia I., Paper on "The Educational Work of a Small Museum," 139
- Groups in Museums, 12; The Exhibition of Large, 68
- Gurley, W. F. E., 167
- Guthrie, Hon. George W., Mayor of Pittsburgh, 25
- Hall, C. W., Paper on "The Preservation of the Type in Museum

- Development," 12; on "The Science Museum: A Factor in Intellectual and Industrial Progress," 155
- Hall, Robert C., Remarks by, 75, 104
- Entertains the Association at Luncheon, 131
- Resolution of Thanks to, 131, 180
- Hitchcock, Charles H., Paper on "How Museums May Aid Comparative Ichnological Studies," 155
- Holland, W. J., Appointed Committee to prepare a Call for the Meeting in New York, 1; Elected Second Vice-President, 11; Elected First Vice-President, 138; Remarks by, 25, 35, 37, 39, 44, 51, 65, 73, 76, 105, 130; Resolution Offered by, 13; Resolution of Thanks to, 11
- Homestead Steel Works, Invitation to visit, 107
- Honolulu, Collections in, 12
- Hornaday, Wm. T., Resolution concerning, 9
- Hoyle, W. E., Congratulations from Museums Association, 4
- Ichnological Studies, 155
- Illinois State Museum of Natural History, The History of, 159
- Installation in Swinging Frames, 62
- Intellectual and Industrial Progress advanced by Museums of Science, 155
- International Bureau of Commerce, 133
- International Zoölogical Congress, Invitation to Seventh, 150
- Jenkins, L. W., Remarks by, 137
- Journal, The Establishment of a, as the Official Organ of the Association, 36
- Juries, See Art Juries
- Kurtz, Charles M., Paper on "In the Organization of an Exhibition of Contemporary Art are the Best Results Obtainable through Juries of Selection Composed of Artists, or through the Invitation of Specific Works Carefully Chosen by a Competent Committee of Laymen?" 108
- Remarks by, 123, 130
- Labelling in Museums, 42
- Library Museum for Common Schools, 150
- Lindahl, Josua, Paper on "Suggestions in Regard to Descriptive Labels in Museums," 12; Curator of Illinois State Museum of Natural History, 164
- Local Representation in Museums, 152
- Lucas, F. A., Paper on "The Evolution of Museums," 12, 82; Remarks by, 40, 45, 67, 71, 73, 103; Elected Second Vice-President, 139
- McCreery, James Rodgers, Address of Welcome by, 25
- McGee, W. J., Paper on "Is it Desirable to Introduce Departments of Geography into Educational Museums?" 9; Remarks by, 33, 39, 65, 75; Resolution Offered by, 39
- Medals, 126, 130
- Members, Active, 17; Charter, 15, 32; Life, 17; Sustaining, 22; In Attendance at Meeting in New York, 5; In Attendance at Meeting in Pittsburgh, 31; Mode of Election, 15; Signifying Adhesion by Letter, 7
- Milwaukee, The Public Museum of, 100
- Minutes of First Meeting of American Association of Museums, May 15 and 16, 1906, 4; Adopted, 32

- Montgomery, Henry, Paper on "Museums and Museum Work in the Public Schools," 9
- Morse, E. S., Paper on "A New Method of Mounting Ethnological Objects," 60; Remarks by, 34, 45, 57, 62; Elected Councillor, 11
- Museums, Exhibition of Large Groups in 12, 68; Educational Arrangement of Natural History, 10; Aims of Art, 9, 91; Evolution of, 12, 82; History, Organization, Development, and Work of Commercial, 12; Private in Nebraska, 12; Collections in Honolulu, 12; Preservation of Types in, 12; The place of Coins and Medals in, 12, 123; Metallic Cases in, 11; Problems to be Solved by, 11, 155; Ecological Arrangement of, 12, 170; Installation of Birds in, 52; Records in, 10, 77; State, 12, 159; Progress Advanced by, 155; Labelling in, 42; Local Representation in, 152; Work in, for Public Schools, 9, 141, 148, 150
- National Educational Association, 12, 33
- Nebraska State Museum, 12; Private Museums in, 12
- Norwood, J. G., 160
- Officers of the American Association of Museums, v, vi; Officers Elected, 10, 138
- Organization of the American Association of Museums, 1; Committee upon, 9
- Pacific Ocean, Exploration of, Paper by W. T. Brigham, 12
- Perine, Miss C. M., Paper read by, 11
- Philadelphia, The Commercial Museums of, 106, 133
- Pittsburgh Golf Club, Resolution of Thanks to, 180
- Pittsburgh Plate Glass Works, Invitation to visit, 107; Resolution of Thanks to, 180
- Portrait Medals, 126
- Postal Rates, Fourth-Class, 13
- Proceedings, Authorized to be Published, 138
- Publications of Association, 13, 36
- Putnam, E. K., Paper on "The Educational Work of the Museum of the Davenport Academy of Sciences," 149
- Putnam, F. W., Resolution Addressed to, 4
- Questions to be Discussed, 178
- Rathbun, Richard, Elected Councillor, 11
- Rea, P. M., Paper on "Bird Records," 10; on "Museum Records," 77; Remarks by, 57, 58, 61, 62, 137
- Elected Secretary, 139
- Records, Museum, 77
- Reports of Committees, 10, 23, 25, 33, 35, 36, 41, 42, 149; of Council, 32, 138
- Resolutions Adopted, 11, 12, 13, 14, 32, 41, 150, 180
- Schools, Public, 9, 141, 148, 150
- Skiff, F. J. V., Resolutions Offered by, 11, 12
- St. Johnsbury, Vermont, The Fairbanks Museum, 139
- Swinging Frames, 62
- Talmage, J. E., Paper on "Local Representation in Museums," 152
- Remarks by, 36, 38, 47, 48, 76, 106
- Elected Member of Council, 11
- Treasurer's Report, 23
- Ulrich, E. O., 165

Ward, Henry, L., Paper on "The Exhibition of Large Groups in Museums," 12, 68; on "Labelling in Museums," 42; on "The Aims of Museums, With Special Reference to the Public Museum of the City of Milwaukee," 100

Remarks by, 71

Webster, F. S., Remarks by, 73

Western University of Pennsylvania, Resolution of Thanks to, 180

Wilson, Dr. W. P., Paper on "The History, Organization, Development, and Work of Commercial

Museums," 12; on "The Organization and Development of the Philadelphia Museums," 133; on "A Library Museum for Use in the Common Schools of the City," 150

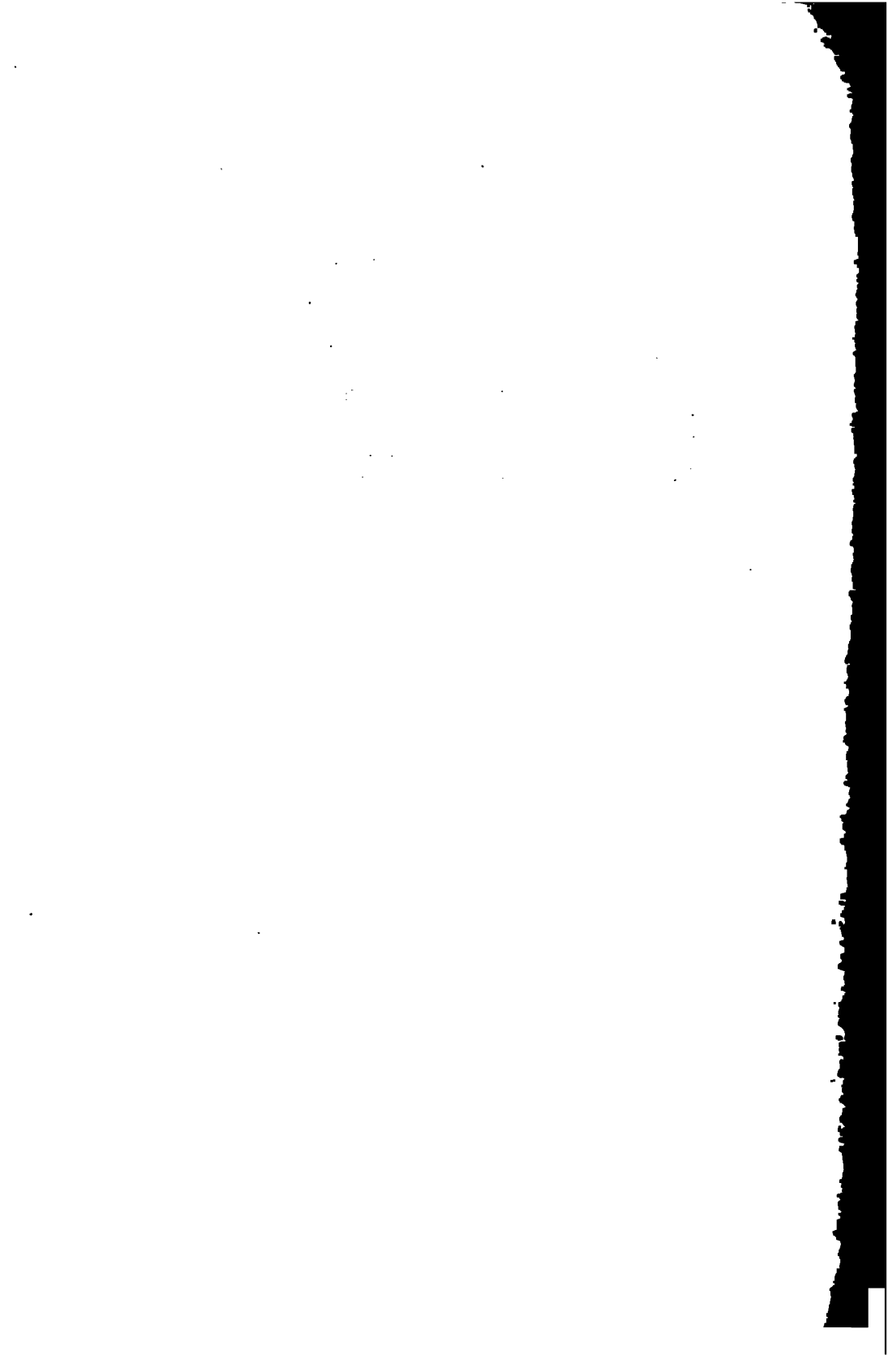
Treasurer, 11, 139

Remarks by, 40, 41, 106, 137, 143, 152, 178, 179

Wistar Institute of Anatomy, 11

Worthen, A. H., 162

Zoölogical Congress, The Seventh International, 150



PROCEEDINGS
of the
American Association of Museum

Vol. II

1908

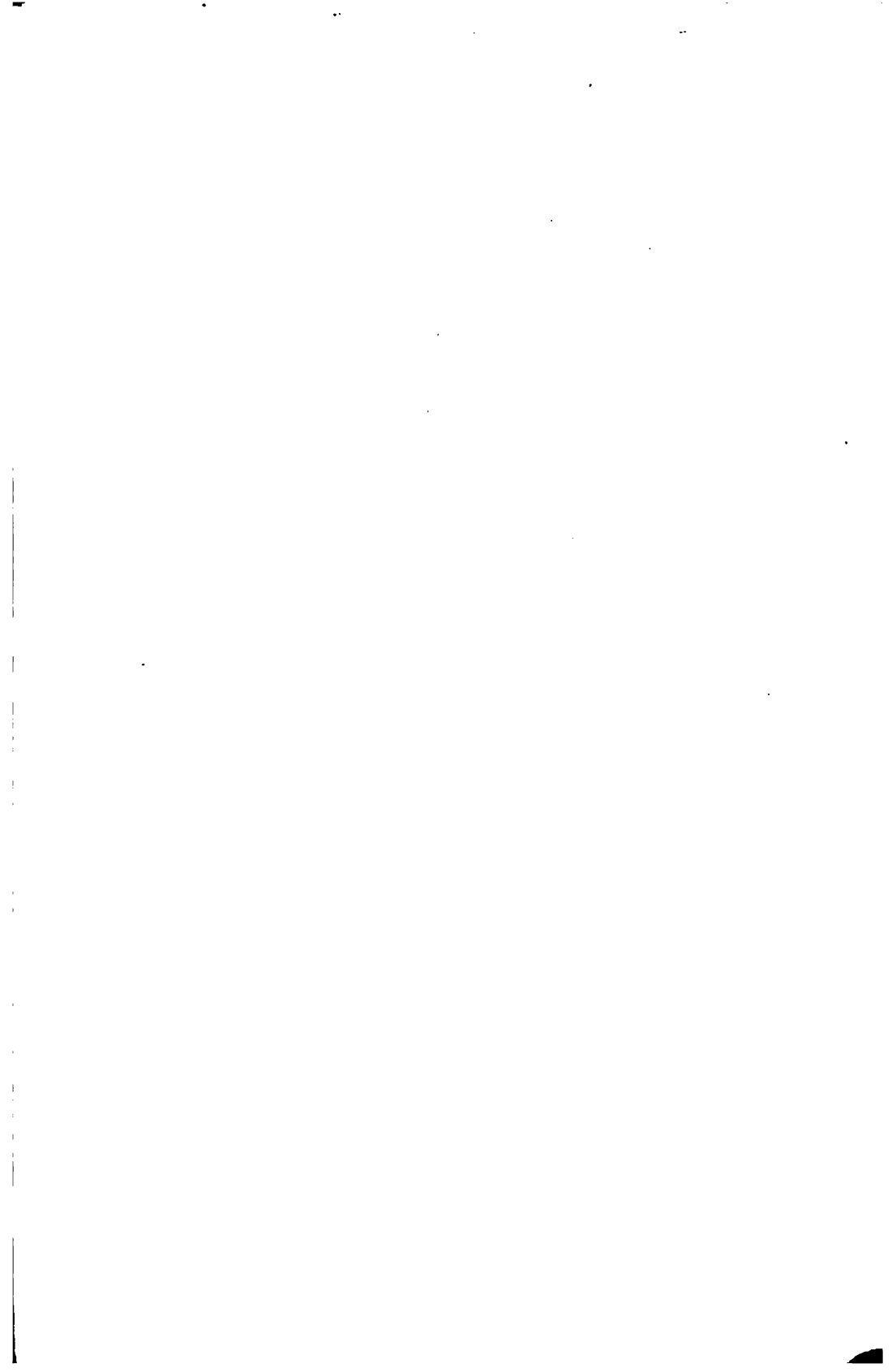


**PROCEEDINGS
OF THE
AMERICAN ASSOCIATION OF MUSEUMS**

VOL. II

1908







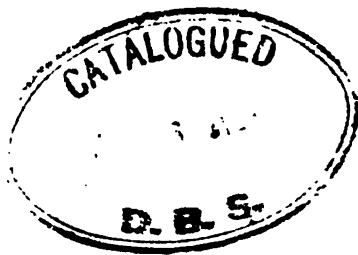
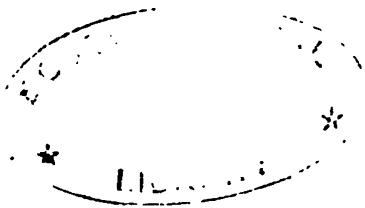
THE AMERICAN ASSOCIATION OF MUSEUMS IN THE ART INSTITUTE OF CHICAGO, MAY 5, 1908

PROCEEDINGS
OF THE
AMERICAN ASSOCIATION OF MUSEUMS

**RECORDS OF THE THIRD ANNUAL MEETING
HELD AT CHICAGO, ILLINOIS**

MAY, 5-7, 1908

CHARLESTON, S. C.
1908



EDITED BY
PAUL M. REA, SECRETARY
THE CHARLESTON MUSEUM
CHARLESTON, S. C.

THE WAVERLY PRESS
BALTIMORE

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AMERICAN ASSOCIATION OF MUSEUMS

1908-1909

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HENRY L. WARD
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1907-1910

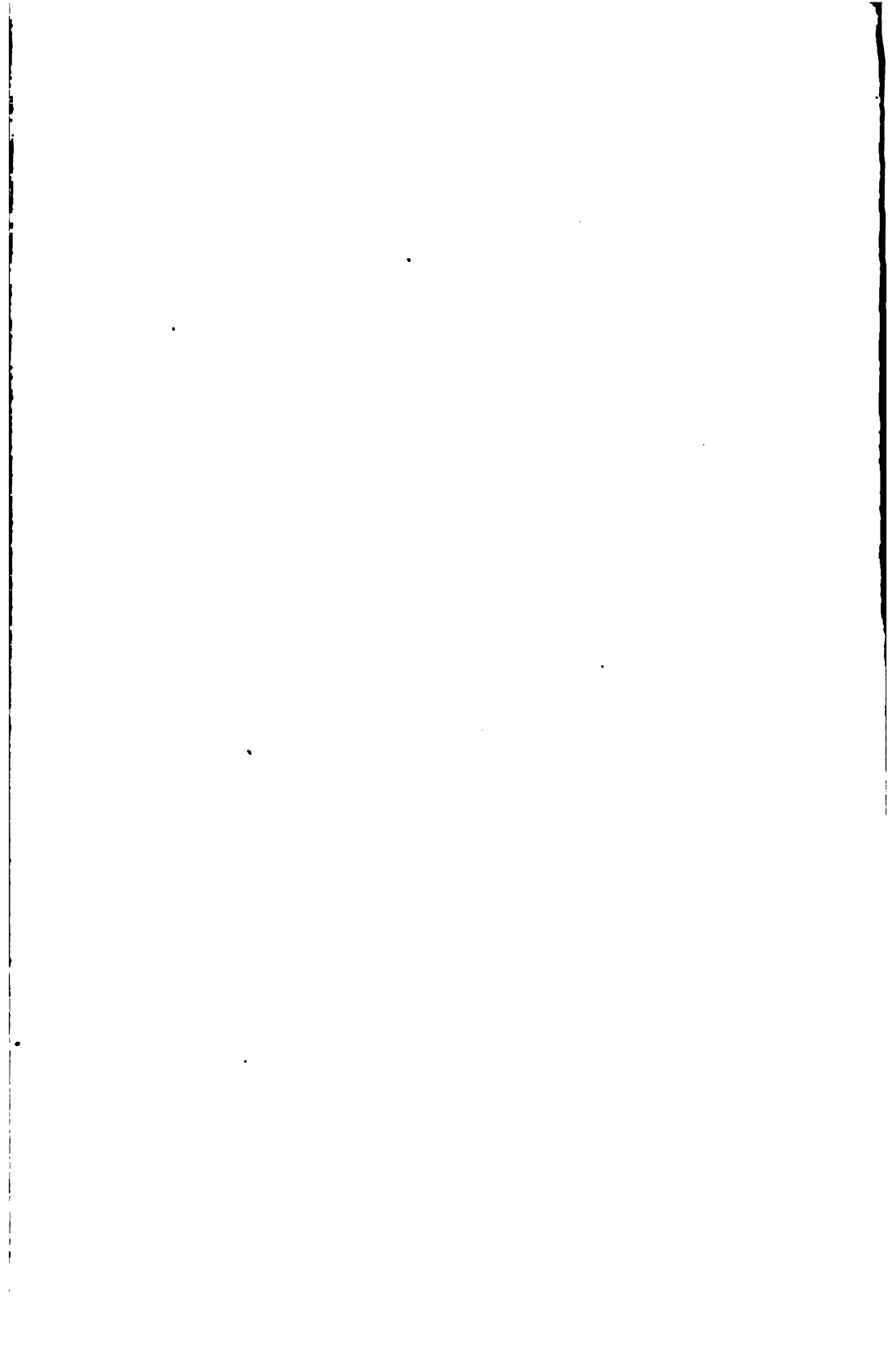
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Field Museum of Natural History, Chicago

1907-1909

RICHARD RATHBUN
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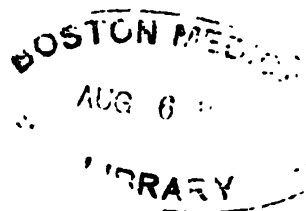


CONTENTS

Photograph taken at the Chicago meeting—*frontispiece*

| | |
|---|-----|
| Officers of the American Association of Museums..... | iii |
| Session of Tuesday, May 5, Morning..... | i |
| Address of welcome, by Charles L. Hutchinson..... | 1 |
| Response, by Frederick A. Lucas | 2 |
| Roll of attendance..... | 3 |
| Report of the Secretary..... | 5 |
| Report of the Treasurer..... | 6 |
| Reports of committees..... | 6 |
| Pedigree cultures and museums, by Charles C. Adams..... | 11 |
| The natural history survey of the Chicago Academy of Sciences, by Frank C. Baker | 15 |
| The field of the small museum, by Geo. L. Collie..... | 23 |
| Discussion of the advisability of separate sessions of art and science | 29 |
| Session of Tuesday, May 5, Afternoon..... | 33 |
| Discussion of the advisability of publishing a directory of museums, opened by the Secretary, Paul M. Rea..... | 33 |
| The educational museum of the public schools of St. Louis, by C. G. Rathmann | 39 |
| Session of Tuesday, May 5, Evening..... | 56 |
| Election of officers | 56 |
| The Lumière Autochrom process of color photography, by F. D. Maisch (read by W. P. Wilson)..... | 58 |
| Session of Wednesday, May 6, Morning..... | 60 |
| Address by Harlow N. Higinbotham | 60 |
| Address by F. J. V. Skiff..... | 61 |
| The educational work of the Davenport Museum, by Edward K. Putnam | 63 |
| Demonstration the plans of the new Field Museum of Natural History, by Theodore Lescher | 73 |
| Session of Wednesday, May 6, Afternoon..... | 83 |
| Report of auditing committee..... | 83 |
| The essentials for a children's museum, by Anna Billings Gallup.. | 84 |
| Discussion of next meeting place | 93 |
| Some principles of museum architecture and associated details by Henry L. Ward..... | 93 |
| Discussion—Do museum lectures pay? Opened by Frederick A. Lucas | 99 |

| | |
|---|-----|
| Session of Thursday, May 7, Morning..... | 108 |
| Address by Thomas C. Chamberlain..... | 108 |
| Some principles of case design, by Oliver C. Farrington..... | 110 |
| Fumigation, by Charles R. Toothaker..... | 119 |
| Some ideas on the founding of an art museum, by Robert Koehler | 125 |
| Session of Thursday, May 7, Afternoon..... | 131 |
| Resolutions | 131 |
| Discussion of the advisability of establishing a permanent exhibit of museum buildings, fittings, and appointments, opened by W. P. Wilson | 132 |
| The geological collections of the Field Museum, by Oliver C. Farrington | 134 |
| A plea for better recognition of Christian Archæology, by A.E. Emerson | 139 |
| Adjournment | 145 |
| Appendix | |
| Constitution..... | 146 |
| Report of the Treasurer | 148 |
| List of Members..... | 149 |
| Index..... | 157 |



PROCEEDINGS
OF THE
Third Annual Meeting
OF THE
American Association of Museums

HELD IN CHICAGO, ILLINOIS

May 5-7, 1908

SESSION OF TUESDAY, MAY 5

Morning

The opening session was called to order in Fullerton Hall of the Art Institute of Chicago, at 10 o'clock by President W. M. R. French, Director of the Institute.

President French.—"I now pronounce the annual sessions open. I regret that it does not fall on me to pronounce the welcome, which I could so heartily do, but since I am a guest, as well as a host, it is thought more graceful that the president of the Art Institute of Chicago should bid you welcome. I therefore have the pleasure of introducing Mr. Charles L. Hutchinson, president of the Art Institute." (*Applause.*)

Mr. Charles L. Hutchinson.—"Mr. President and Ladies and Gentlemen: As president of the Art Institute it gives me great pleasure to bid you welcome, and to say to the members of the American Association of Museums that all we have we freely offer for your comfort and enjoyment while you are with us.

"Your organization is a very timely one, for the museum is now no longer regarded by the intelligent people of our country as a luxury intended for the few, but as a necessity demanded by the many. It is now called to play a very important part in education and in the advancement of civilization among all people.

"Its installation and its administration are of vital importance, for upon these in a large measure depends the value of any museum to the community in which it exists. Its function is three-fold: To collect, preserve, and disseminate knowledge and to furnish or afford a healthful pleasure. If it properly fulfills its mission in this respect, its attitude must be one of universal hospitality. Not only should it welcome all who come, but it should employ every legitimate means at its command to bring people to it. Its treasures should be accessible to the public with as little restriction as possible and, in its administration, rules and regulations should be reduced to the minimum consistent with the care and safety of the objects shown. Our experience teaches us that the public can be trusted and that it will respect confidence placed in it. The museum that becomes a mere warehouse for the safe-keeping of objects is, as you all know, of very little value to any community.

"But I was not invited to read a paper before you on the ideal museum and its inspiration and installation, but simply to say a brief word of welcome. True hospitality does not exalt the host nor seek to exploit his treasures and so I will refrain from telling you of the many things that you may expect to find in our libraries and museums. I will only assure you that you will find in each and every one of them, as you have found here, a most hearty welcome and God-speed, and a cordial invitation to come again." (*Applause.*)

President French.—"In behalf of the Association, I will ask Mr. Lucas to respond. Mr. Lucas, as you know, is the Curator-in-chief of the Museums of the Brooklyn Institute of Arts and Sciences." (*Applause.*)

RESPONSE TO ADDRESS OF WELCOME

Mr. Frederick A. Lucas.—"Mr. President, and Members of the Association: We are all familiar with the manner in which Chicago, through her citizens, responds to the demands made upon her. Most of us are old enough to remember how she rose from the ashes of her great fire with the tallest buildings the world had seen at that time, and thus set the fashion for her elder sister of Manhattan. Later, selected as the embodiment of four centuries of civilization in the western world, the result was the greatest exposition this continent has ever seen. If she is styled as having the dirtiest river in the world (though I think we can beat it in Brooklyn) her response is a drainage canal which bids fair to become one of the great highways of commerce. Styled a great commercial city, her response is in such institutions as the Academy of Sciences,

the Art Institute, the Field Museum of Natural History, the John Crerar Library, and kindred institutions, which have made Chicago a great center of science and art. And so I think none of us is surprised at receiving so cordial a welcome here.

"None the less is it pleasant to be so warmly greeted, and I esteem it a great privilege that it has fallen to me to respond to this welcome. Therefore, as representing the American Association of Museums, I tender to Mr. Hutchinson, on behalf of each and every member of the Association, our sincere thanks for the cordial and courteous welcome extended us." (*Applause.*)

Taking up the regular order of business the roll was then called by Secretary Rea, and the following is a list of the members present, together with the institutions represented by them.¹

ROLL OF ATTENDANCE

Charles C. Adams, University of Chicago, Ill.²
 C. E. Akeley, Field Museum of Natural History, Chicago, Ill.
 Frank C. Baker, The Chicago Academy of Sciences, Chicago, Ill.
 Bessie Bennett, The Art Institute of Chicago, Chicago, Ill.
 Elmer E. Blackman, State Historical Society, Lincoln, Neb.
 W. A. Bryan, The Bishop Museum, Honolulu, H. I.
 C. H. Burkholder, The Art Institute of Chicago, Chicago, Ill.
 N. H. Carpenter, The Art Institute of Chicago, Chicago, Ill.
 Sir Caspar Purdon Clarke, Metropolitan Museum of Art, New York, N. Y.
 Geo. L. Collie, Logan Museum, Beloit College, Beloit, Wis.
 George Corliss, The Art Institute of Chicago, Chicago, Ill.
 Adolphe B. Covert, University of Cincinnati Museum, Cincinnati, O.
 L. L. Dyche, State University, Lawrence, Kansas.
 Oliver C. Farrington, Field Museum of Natural History, Chicago, Ill.
 Fanny Fisher, State Museum of Natural History, Springfield, Ill.
 William Henry Fox, John Herron Art Institute, Indianapolis, Ind.
 William M. R. French, The Art Institute of Chicago, Chicago, Ill.
 Anna Billings Gallup, The Children's Museum, Brooklyn, N. Y.
 J. H. Gest, The Cincinnati Museum Association, Cincinnati, O.
 Robert Glenk, State Museum, New Orleans, La.
 U. S. Grant, Museum of the College of Liberal Arts, Northwestern University, Evanston, Ill.
 Jesse M. Greenman, Field Museum of Natural History, Chicago, Ill.
 Delia I. Griffin, The Fairbanks Museum of Science, St. Johnsbury, Vt.
 A. H. Griffith, Detroit Museum of Art, Detroit, Mich.

¹ The list of members present is based upon the registration book as well as the roll call.

² Present address: Natural History Building, University of Illinois, Urbana, IH.

- E. N. Gueret, Field Museum of Natural History, Chicago, Ill.
 C. V. Hartman, Carnegie Museum, Pittsburgh, Pa.
 Halsey C. Ives, St. Louis Museum of Fine Arts, St. Louis, Mo.
 L. W. Jenkins, Peabody Museum, Salem, Mass.
 Otto E. Jennings, Carnegie Museum, Pittsburgh, Pa.
 Mrs. Otto E. Jennings, Carnegie Museum, Pittsburgh, Pa.
 Robert Koehler, Minneapolis Society of Fine Arts, Minneapolis, Minn.
 Charles M. Kurtz, Albright Art Gallery, Buffalo, N. Y.
 Elizabeth J. Letson, Buffalo Society of Natural Sciences, Buffalo, N. Y.
 Gustave A. Link, Carnegie Museum, Pittsburgh, Pa.
 Elsie Lippincott, Field Museum of Natural History, Chicago, Ill.
 Frederick A. Lucas, Brooklyn Institute Museums, Brooklyn, N. Y.
 Mabel McIlvaine, Metropolitan Museum of Art, New York, N. Y.
 Ira B. Meyers, School of Education Museum, University of Chicago, Chicago, Ill.
 William C. Mills, State Archaeological and Historical Society, Columbus, O.
 Roy W. Miner, American Museum of Natural History, New York, N. Y.
 Arnold E. Ortmann, Carnegie Museum, Pittsburgh, Pa.
 J. H. Paarmann, Davenport Academy of Sciences, Davenport, Ia.
 Olaf August Peterson, Carnegie Museum, Pittsburgh, Pa.
 Edward K. Putnam, Davenport Academy of Sciences, Davenport, Ia.
 C. G. Rathmann, Educational Museum, St. Louis, Mo.
 Paul M. Rea, The Charleston Museum, Charleston, S. C.
 Elmer S. Riggs, Field Museum of Natural History, Chicago, Ill.
 Boyd P. Rothrock, Pennsylvania State Museum, Harrisburg, Pa.
 Mrs. Boyd P. Rothrock, Pennsylvania State Museum, Harrisburg, Pa.
 Jos. A. Santens, Carnegie Museum, Pittsburgh, Pa.
 Remi H. Santens, Carnegie Museum, Pittsburgh, Pa.
 Frederick J. V. Skiff, Field Museum of Natural History, Chicago, Ill.
 Harry S. Swarth, Museum of Vertebrate Zoölogy, Berkeley, Cal.
 Charles R. Toothaker, Philadelphia Museums, Philadelphia, Pa.
 Mary Van Horne, The Art Institute of Chicago, Chicago, Ill.
 Henry L. Ward, Milwaukee Public Museum, Milwaukee, Wis.
 Stuart Weller, Walker Museum, University of Chicago, Chicago, Ill.
 C. P. Wilcomb, Hall Museum of Anthropology, Aspinwall, Pa.
 W. P. Wilson, Philadelphia Museums, Philadelphia, Pa.
 Alicia M. Zierden, Pennsylvania State Museum, Harrisburg, Pa.

At the conclusion of the roll-call President French announced the program for the day, and read an invitation from the Chicago Historical Society to visit its building and examine its collection, and a similar invitation from the Board of Directors of the Crerar Library. A communication from Mr. F. J. V. Skiff, director of the Field Museum of Natural History, was then read, extending on behalf of Mr. Milward Adams, manager of the Auditorium Theatre, an invitation to the members to attend the Wednesday evening performance as his guests; together with

a further communication from Mr. Skiff extending to the members the privileges of the Field Museum of Natural History.

President French then called for the reading of reports, and Secretary Rea submitted the following report, which on motion of Dr. Oliver C. Farrington, Curator of Geology in the Field Museum of Natural History, was accepted and ordered placed on file.

REPORT OF THE SECRETARY

The Secretary begs to report that he has attended to the routine correspondence during the year, about one hundred letters having been written against forty-four for the previous year. The letters have included inquiries concerning membership and the work of the Association, as well as arrangements for the annual meeting. Twenty persons have been proposed for membership, one of whom, Professor F. Gruber, Curator of the Department of Natural History in the Memorial Museum, Golden Gate Park, San Francisco, died before qualifying as a member. The Secretary also regrets to record the death on June 27, 1907, of Mr. Paul Edmond Beckwith, a charter member of the Association. Mr. Beckwith was born in St. Louis, Mo., September 22, 1848. In 1886 he became a member of the scientific staff of the U. S. National Museum and, at the time of his death, he was Assistant Curator of the Division of History of that institution. Mr. Beckwith was the author of several works of an historical nature and was a member of a number of scientific societies. In his death, the Association has suffered a distinct loss.

The Secretary believes that the publication of the Proceedings of the Association and the adoption of definite lines of activity designed to promote coöperation between museums, affords an opportunity of materially increasing our membership during the coming year.

As a part of the arrangements for the annual meeting, the Secretary has endeavored to secure a general expression of opinion concerning various lines of activity open to the Association. A discussion of these matters will be presented in a separate paper.

Fifty copies of the Proceedings in paper binding have been received from Doctor Holland. One of these has been taken as a Secretary's copy for corrections, etc., five have been distributed under the direction of the President, Mr. French, and two have been sent to new or prospective members.

Respectfully submitted,

PAUL M. REA, *Secretary.*

President French.—"Before proceeding with the other reports, I desire to say that it has been impossible to get all the papers beforehand, or even a full list of them. It will therefore be well, perhaps, to appoint a committee on program who shall retire from the present meeting and make out some order of exercises which shall govern this meeting in the submission and discussion of papers. If there is no objection on the part of the assembly I will appoint as such a committee, Mr. Henry L. Ward of the Milwaukee Public Museum, Mr. Halsey C. Ives of the St. Louis Museum of Fine Arts and our secretary, Mr. Paul M. Rea of the Charleston Museum.

"In this connection I may say that I proposed by letter to various members that we should have separate sessions at times of the art museums and the natural history museums. I have been rather gratified to find that in several instances the representatives of the natural history museum have said that they wished we would not separate ourselves from them. We have made no arrangement as yet, and so few fine art papers have been received for submission to this assembly, that we shall scarcely need separate sessions. However, the program committee can judge of that."

REPORT OF THE TREASURER

The report of the treasurer was then read by Dr. W. P. Wilson,¹ director of the Philadelphia Museums, and referred to an auditing committee appointed by the Chair, consisting of Messrs. O. C. Farrington, Frank C. Baker, and N. H. Carpenter.

REPORTS OF COMMITTEES

President French.—"The reports of committees are next in order. I will ask the secretary to name those committees."

Secretary Rea.—"A committee was appointed to take action with regard to the affiliation of this Association with the National Educational Association. Dr. Holland is chairman of this committee, but is not present. Other members are Dr. McGee and Dr. Dorsey, and they also are absent."

President French.—"There appears to be no report from this committee. Is it your will that the committee be continued?"

Mr. Henry L. Ward (Milwaukee Public Museum).—"I move you, Mr. President, that the committee be continued."

¹For treasurer's report in full, see Appendix.

The motion was put to a vote and unanimously prevailed.

Secretary Rea.—"A committee was continued at the last meeting to endeavor to secure the benefits of the Carnegie Foundation for museum officials. Dr. Holland is chairman of this committee. The other members are Messrs. Bumpus, Osborn, Gilman, Morse, Skiff, McGee, French and Sir Caspar Purdon Clarke."

President French.—"I will make an informal report for this committee. The committee has not been called together. Dr. Holland, the chairman, is, as is well known, very near to Mr. Carnegie. The idea in mind was that we might induce the Carnegie Foundation to recognize museum officers as persons within the scope of the pensions of that fund. It is an extremely doubtful matter, but I think it might be well for us to continue that committee also. Dr. Holland is now in Europe. He will be active, as he has always been, in the Association, and if anything can be done he will be able to do it."

On motion of Mr. Ward, this committee was ordered continued.

Secretary Rea.—"A committee was also continued to endeavor to secure the benefit of second-class postal rates for publications of museums issued at irregular intervals. Mr. French is chairman of this committee, with Dr. Holland, Mr. Lucas, and Dr. Dorsey as the other members."

President French.—"I was not aware until I had received the Proceedings that I was on this committee. I do not think that I was regularly notified. However, that whole matter, I may say, appears to be so discouraging from our experience in our own institution, that I scarcely think it is possible to do anything about it. Is there anybody who can give us any information on that subject, or who has anything to say upon it? I would be inclined to ask that this committee be discharged. I do not think there is much use in continuing it."

Mr. L. W. Jenkins (Peabody Museum, Salem, Mass.).—"Mr. Chairman, I move that this committee be discharged."

The motion was not seconded.

Mr. Frederick J. V. Skiff (Field Museum of Natural History, Chicago).—"Mr. Chairman, I dislike very much to place myself in opposition to any motion, although it may be in this case that the motion is more one of indifference than active desire.

"In the first place I may say that I am responsible for the resolution which provides for this committee, and that Dr. Dorsey has made some investigations at Washington which it seems do not present an altogether hopeless aspect. It depends, I believe, upon the construction of one

clause in the postal regulations, and it may be that we will have a continuation in some form of an administration whose sympathies are as thoroughly in accord with the dissemination of knowledge as the present one, in which event I think it might be well, especially as there is no one to report for the committee, and as the gentleman who has made the inquiries is out of the country, to allow this committee to continue with the others.

"This question of postal classification makes a great difference in the expenses of some institutions. Of course to those which do not publish, it is of little importance. Those which do have an extensive free list of publications find that it becomes a great burden when they have to pay the postage which an individual would have to pay."

Mr. Jenkins.—"I am willing to withdraw the motion. It was not made from indifference, but I had been informed that the post-office department had refused to entertain any idea of that kind, and for that reason I thought that there was no use in continuing the committee. If, however, there is use in continuing it, I withdraw my motion."

President French then requested that Mr. N. H. Carpenter of the Art Institute of Chicago be put on the committee in his place and that Dr. Dorsey of the Field Museum of Natural History be made chairman. With these changes the committee was then continued, on motion of Dr. W. P. Wilson of the Philadelphia Museums.

Secretary Rea.—"A committee was appointed to coöperate on behalf of this Association with representatives of other educational institutions in an endeavor to secure a repeal of the duty now imposed by the United States Government upon works of art coming from abroad. Mr. French is chairman of this committee."

The chair was here assumed by Vice-president Lucas and President French presented the following report.

REPORT OF THE COMMITTEE ON FREE ART

At the meeting of the Council in New York, 1906, a committee was appointed, consisting of Dr. W. J. Holland, Messrs. Halsey C. Ives, W. M. R. French, George F. Kunz, Edward Robinson and Benjamin Ide Wheeler, to endeavor to coöperate on behalf of this Association with representatives of other educational institutions in an endeavor to secure the repeal of the duty now imposed by the United States Government

upon works of art coming from abroad. This committee was not prepared to report at the last meeting, but was continued.

Your committee begs to report that they prepared a circular for signature by the various art institutions of the country in the following form:

TO THE HONORABLE SENATE AND HOUSE OF REPRESENTATIVES IN
CONGRESS ASSEMBLED:

We, the undersigned, officers, directors and trustees of art museums in the United States, respectfully petition for free art legislation in accordance with House Bill No. 15268, 1906.

We believe that works of art are not chiefly luxuries, and that the legislation for which we ask will be beneficial from an industrial as well as an educational point of view, for the following reasons:

European cities are rich in works of art, the accumulation of centuries.

The workmen living there are consciously or unconsciously influenced by their environment to give mechanical products an artistic touch that makes them attractive in the markets of the world.

In such matters a new country like our own is at a great disadvantage. The remedy, for many years, will be largely in the hands of the art museums. They aim to keep before the public, as an educational influence, the best works of art in all departments. The bulk of their material for this work must be of foreign origin.

It does not suffice that the museums may import directly for their own use and possession without payment of duty. Few of them have much money to spend in that way. They depend largely on gifts, bequests and loans of works of art from private owners, who have paid the duty, though they are doing substantially the same educational work as the museums themselves. Such important aid in the elevation of the public taste, with its beneficial influence on industrial production, would be far more abundant if the tax upon it were removed.

The only industry protected by the duty in question is that of the artists, yet a majority of the best of them are on record as petitioners for its removal.

This petition has received the signatures of the representatives of art museums and organizations throughout the country, and has been sent to Hon. Henry S. Boutell, Representative from Chicago, for presentation to Congress.

The number of institutions which signed it was 33, the number of officers signing, 196.

Printed copies of the petition with the signatures (of which a copy is filed herewith) were sent to all the Members of Congress. Responses were received from 116, including 29 Senators and 87 Representatives. Their answers may be classified as follows:

| | | | | |
|--|----|----------|----|-----------------|
| In favor of removal of duty.... | 5 | Senators | 30 | Representatives |
| Favorably inclined | 4 | " | 9 | " |
| Promise consideration | 15 | " | 41 | " |
| Definitely opposed | 0 | " | 1 | " |
| Acknowledged letter, but gave no definite opinion | 5 | " | 6 | " |
| | — | | — | |
| | 29 | " | 87 | " |

Of 19 members of the Committee on Ways and Means, 6 are in favor of removal or favorably inclined, 4 will give the subject careful consideration, 2 are doubtful and 7 do not answer.

The general impression was that no action would be taken by Congress until there is a general revision of the Tariff.

We have transmitted the information we have collected to Myron E. Pierce, Secretary of the Free Art League, which has its headquarters in Boston, for use in their active campaign.

We hope by perpetual agitation to accomplish our purpose.

WM. M. R. FRENCH,
for the Committee.

Chairman Lucas.—"You have heard the report of the committee on the repea' of the duty on works of art. What is the pleasure of the Association?"

On motion of Mr. Ward the report was accepted, ordered placed on file, and the committee continued.

President French here resumed the chair.

Secretary Rea.—"A committee on publication of the Proceedings of the Pittsburg meeting was appointed, of which Mr. French is chairman."

President French.—"I can only say that the Proceedings have been duly published and distributed, and that we have a balance in the treasury. Is it your will that this report be accepted? The committee will naturally be discharged by limitation."

Dr. W. P. Wilson (Philadelphia Museums).—"I move you, sir, that the report be accepted and the committee discharged."

The motion was seconded.

Mr. F. J. V. Skiff (Field Museum of Natural History, Chicago).—"Mr. President; may I take advantage of a personal privilege and ask that there be incorporated with the formal motion some expression of the appreciation of the very excellent work performed under the direction of that committee, as manifested by the character and appearance of the report. It is really one of the most capable, interesting, satisfactory

and complete reports, especially of running proceedings, that I have ever observed in any convention or society meeting; and I think that while we ought not perhaps to set an example of expressing our gratitude for all the work of our officers, who, to be sure, are supposed to acquit themselves creditably, it perhaps might in this case be considered only just to do so.'

Dr. Wilson.—"Mr. President; I would like to say with reference to this amendment to the motion, if it be considered such, that this work was, as we all know, largely done by Dr. Holland and was contributed to personally by him to the extent of \$200. I think that fact ought to be known to the Association."

President French.—"You accept Mr. Skiff's amendment?"

Dr. Wilson.—"I am very glad to accept it."

Mr. Skiff.—"May I add one word more: the explanation of Dr. Wilson, who is always fair and always wise, it seems to me, simply accentuates the suggestion that occurred to me, as I have no doubt it did to all the members of the Association, that there was work done. I am glad to have it brought to the attention of all the members, that it is Dr. Holland to whom we are so much indebted."

President French.—"Are there any further remarks? I should feel some embarrassment in putting this motion, if it were not that it is perfectly well understood that Dr. Holland did all the work and paid a large part of the expense. With this explanation I will put the question."

The question was stated by President French and, being put to a vote, prevailed unanimously.

Secretary Rea.—"I know of no further committees."

There being no new business, Mr. Charles C. Adams of the University of Chicago, presented the following paper:

PEDIGREE CULTURES AND MUSEUMS

I. HEREDITY AS A MUSEUM SUBJECT

It is generally agreed that the greatest biological advance of the past century has been in our conception of evolution, and a knowledge of its facts. The study of its method will undoubtedly be the primary biological problem of the present century. It is also generally granted that heredity is one of the most important factors of evolution. The subject before us is: What relation do museums bear to this important topic

in the case of pedigree cultures of plants and animals?¹ By pedigree cultures is meant that material which results from experimental studies of heredity in which careful pedigree records have been preserved.

My aim is to mention certain conditions which are pertinent to the experimental study of heredity, and to note the relation and value of the resultant pedigree material to the aims and needs of museums and their relation to the public.

It must be acknowledged that very few museums devote any serious attention to the subject, either in exhibits, in efforts to secure pedigree material, or in practical encouragement of research along such lines. It is entirely within the field of legitimate museum activity to emphasize this subject, and hence such neglect is not only unnecessary but particularly unfortunate. If this is true of institutions which strongly champion research, there is even less excuse for this neglect by those museums which attempt to reach an extensive public through emphasis on display, for no subject arouses more popular interest than heredity, and this very interest may be made a new source of support, not only for exhibits devoted to heredity, but also for museum activities in general.

II. THE PRESENT OPPORTUNITIES AND RESPONSIBILITIES

Never before has there been so much interest and activity among scientific men in breeding experiments as at the present time. Several extensive experiments are now in progress which, in all probability, will become classic in biological history. This activity is not limited solely to investigators in pure science, but includes as well many students of economic plants and animals.

In what manner are museums related to the material resulting from such experiments? If large natural history collections are offered for sale, which have been accumulated by specialists who have published extensively, the museums at once see the value of such collections and are active in securing them, either from their present funds or by securing special grants or gifts from wealthy patrons. We do not, however, find a corresponding interest in securing the results of extensive breeding experiments. Furthermore, specialists who build up extensive systematic collections are quite likely to take a special interest in the technique necessary for the preservation of such material,

¹ Attention should be called to the recent book by Prof. J. Arthur Thompson on "*Heredity*" for its great utility and wealth of suggestions and data essential to the planning of exhibits along this line.

and are thus more or less familiar with certain methods of preservation and recording which are current in museums. On the other hand, a large number of those who conduct breeding experiments are not particularly interested or trained in museum technique, and for this reason they do not take the same kind of care and interest in the preservation of their material. This circumstance is particularly favorable for the neglect or even destruction of the resultant material. No taxonomist or paleontologist would think of destroying, although he might sadly neglect, the collections and types upon which his studies were based. Should not the same or similar care be taken of pedigree material? In general this should certainly be done. This is not, however, an argument that such material or collections be made a fetish, as type specimens have become in the minds of some students. But it does mean that greater care and interest along these lines is very desirable on the part of museums if many important series of this kind of "vanishing data" are to be preserved for reëxamination by future students.

III. METHODS OF SECURING THE MATERIALS

Of course many practical difficulties are encountered in the preservation of certain kinds of specimens and records. This is particularly true when the specimens are numerous and bulky, and also when they consist of organisms, which, as they grow, obliterate or transform their earlier stages and thus require extensive records, photographs, etc., to make clear their characters and development. Then again, the rapid accumulation of such material, which is the characteristic accompaniment of breeding experiments, makes its preservation a serious problem, and often a burden for the investigator. These and other circumstances suggest methods which may make it possible for museums to secure valuable collections. A few of these may be mentioned as follows:

1. Some system of coöperation, financial or otherwise, which may induce breeders to part with their specimens, records, etc. The expansion of experiments, due to rapid multiplication, makes financial help appeal with particular force to the breeder. Further, museums may furnish skilled preparators, taxidermists, etc., which will not only improve methods of preservation, but also relieve the experimenter of some of his drudgery and allow him more time for reflection. Finally, the burden of caring for the accumulating specimens is likely to seem an unnecessary expense to the experimentalist, whose interests are naturally toward the future, rather than upon what has been accomplished.

2. Purchase of material already produced by completed experiments. This applies particularly to material resulting from the study of certain economic problems.

3. The conduct of experiments by museums themselves in order to utilize local material to supplement collections already on hand, or as a part of their own contribution to the advancement of knowledge.

IV. ADVANTAGES OF COÖPERATION BETWEEN MUSEUMS AND EXPERIMENTERS

There seems to be no reason why individuals and institutions, other than museums, should not give as good care to pedigree material as do the museums themselves. Yet under present conditions, the museums have certain decided advantages. It is worth while to cite some of these favorable results which may be expected to follow from the coöperation of investigators and museums:

a. Because of their permanent character, their definite systems of recording data, their storage facilities, and the constant attention of the curators, the chances of preservation of such collections are greatly increased. As a rule, the investigator loses interest in the old material as the new accumulates and this is a fertile cause of the deterioration of collections.

b. The bulky character of a collection does not burden a museum as it does an individual.

c. The most improved methods of preservation are made available by the skilled preparators and taxidermists of museums. This skill is not usually possessed by the investigator, or if he does possess it, he may not have sufficient time to exercise it, even if he does realize its importance.

d. Museums would be greatly strengthened by the valuable collections and exhibits, and by the closer contact with the public and the investigators, while the preservation of their collections should have a healthy influence upon the accuracy of experimenters.

Before leaving this subject of coöperation, a word should be said which applies not only to students of pedigree cultures, but also to physiologists—both plant and animal—experimental morphologists, embryologists, and many other investigators of biological problems. That word is, that more attention should be given to the preservation of the specimens upon which their scientific conclusions are based.

Summarizing this discussion, it seems evident that there are many reasons why breeders, experimentalists and other investigators should

give more attention to the methods of preparation and permanent preservation of the materials upon which their investigations are based and that museums should be awake to their present opportunities for securing pedigree and other material for records and exhibits; and that the coöperation of the museums and experimenters will greatly increase the quality and quantity of the material preserved.

The next paper was presented by Mr. Frank C. Baker, curator of the Chicago Academy of Sciences, as follows:

THE NATURAL HISTORY SURVEY OF THE CHICAGO ACADEMY OF SCIENCES

At the Pittsburg meeting of the American Association of Museums Mr. Charles C. Adams read a very suggestive paper entitled "Some of the Advantages of an Ecological Organization of a Natural History Museum," and emphasized the value of local natural history surveys. For the past sixteen years the Chicago Academy of Sciences has been carrying on a survey of this character of the environs of Chicago, and the present paper aims to present a succinct account of the work which has already been accomplished as well as that which is planned for the future.

Early in 1892, through the efforts of Prof. William K. Higley, late secretary of the Academy, an organization was formed known as the "Natural History Survey of the Chicago Academy of Sciences." The organization is controlled by a board of managers, consisting of five members of the Academy. It was decided early in the organization to entrust the work to men recognized as specialists and to publish the results of their studies in a monographic manner. The publications were to be known as bulletins and were to be published consecutively; each bulletin, however, was to be a complete report on the particular branch of the work and if requiring more than one report for its completion was to be made in parts.

The following subjects were planned and were placed in the hands of competent workers:

- I. The Lichen-Flora of Chicago and Vicinity. By William Wirt Calkins.
- II. The Pleistocene Features and Deposits of the Chicago Area. By Frank Leverett.
- III. The Mollusca of the Chicago Area. Part 1, The Pelecypoda. Part 2, The Gastropoda. By Frank Collins Baker.

- IV. The Paleontology of the Niagaran Limestone in the Chicago Area. Part 1, The Crinoidea. Part 2, The Trilobita. By Stuart Weller.
- V. The Mineralogy of the Chicago Area. By Alja Robinson Crook.
- VI. The Birds of the Chicago Area. By Frank Morley Woodruff.
- Boring Records of Chicago and Vicinity.
- Composition of the Waters of the Deep Wells of the Chicago Area. By John H. Long.
- The Niagara Formation. In charge of Thomas C. Chamberlin.
- Paleontology. (Subsequent parts). By Stuart Weller.
- Fleshy Fungi. By W. S. Moffatt.
- Algæ. By C. B. Atwell.
- Pteridophyta and Bryophyta. By E. J. Hill.
- Flora of Cook County and Vicinity.
- Lower Invertebrates.
- Insecta and other Arthropods.
- Noxious Insects.
- Fishes. By Seth E. Meek.
- Batrachia and Reptilia. By Seth E. Meek.
- Mammalia.
- Ethnology and Archaeology. By William A. Phillips.
- General Ecology.

Of the above list the first six have been issued and several others are almost ready for publication.

Previous to the organization of the Natural History Survey some local work was accomplished by members of the Academy, the most notable being that of Dr. E. W. Andrews, on North American Lakes; of Messrs. H. A. Johnson, B. W. Thomas and George M. Dawson, on the Boulder Clays of Chicago; of Mr. Leander Stone, on Chicago Artesian Wells, and of Messrs. William K. Higley and Charles S. Raddin, on the Flora of Cook County. The idea of a local survey undoubtedly had its conception early in the history of the Academy, but this idea did not take tangible form until the formation of the present Natural History Survey.

The area covered by the survey includes the whole of Cook and Du Page counties, the nine northern townships of Will county and a portion of Lake county, Indiana. This region embraces a total area upwards of 2500 square miles in extent or a land surface of nearly 1800 square miles. This territory embraces two distinct natural drainages, one into Lake Michigan through the lakes in the southern part of the region and the Chicago River, and one into the Mississippi River through the Des-

plaines, Du Page, Fox and Illinois Rivers. A low divide is situated between the north branch of the Chicago River and the Desplaines which in times of flood permits the waters of the latter stream to overflow its banks and discharge into the north branch and thence into Lake Michigan. In this manner there is caused a mixture of the faunas of the two drainage areas. This is also true of the southern portion of the area, where during times of freshets the waters of the lakes and creeks mingle. In several parts of the area under discussion the natural drainage has been much affected by artificial canals. In the southern region the old canal feeder connects the Desplaines River with Stony Creek, which causes the waters of the Little Calumet River to mingle with those of the Desplaines River. In the center of the area the waters of the Illinois and Michigan Canal and of the new drainage canal and the south branch of the Chicago River mingle with the waters of the Desplaines River and Lake Michigan. Just what the ultimate effect of the large drainage canal on the fauna of the Mississippi River system may be is not yet definitely known.

The area selected for this local survey is peculiarly well adapted for ecological study as it embodies a large variety of environments. The region lying north of the mouth of the Chicago River and east of the Desplaines River, including the north branch of the Chicago River and its tributaries, is composed of a number of high ridges with marshy ground between. This district is well wooded. West and south of the Desplaines River the territory consists of rolling prairies. Swamps, except near the rivers, are absent, but woodlands are found along the river banks. The region lying south of the Chicago River and bordering Lake Michigan is low and swampy, with small patches of woodland here and there. There are five small lakes in the region, partly in Cook County, Illinois, and partly in Lake County, Indiana. These are Calumet ($3\frac{1}{2}$ by $1\frac{1}{2}$ miles), George ($2\frac{1}{2}$ by $\frac{5}{8}$ miles), Wolf (3 by $1\frac{1}{2}$ miles), Berry (2 by $\frac{1}{2}$ miles) and Hyde ($1\frac{1}{2}$ by $\frac{3}{4}$ miles). These lakes are connected with Lake Michigan and with each other by sluggish bayous and the Calumet River. These lakes and ponds are relics of the glacial period and were once included in the area of Lake Michigan, or Lake Chicago as it is called geologically. The receding of the lake has left this peculiar topography in the southern part of the territory.

In the northwestern part of Lake County, Indiana, the country is covered with a very extensive series of sand dunes. Bordering the lake the dunes are composed of bare sand, but farther inland they are covered with a scanty growth of stunted trees. The ridges are rather high and

between them are swales of a greater or less extent. The dune region supports a peculiar fauna and flora, which, added to the faunas and floras of the other three regions mentioned, forms a biota unsurpassed for variety by any similar region in the central United States.

The underlying rock of the region is Niagara Limestone, which outcrops in the southwestern part of the area and abounds in fossils, showing that this region in Silurian time supported a large and varied marine fauna.

The importance of a natural history survey of a region like the environs of Chicago cannot be fully appreciated until we grasp the fact that slowly but surely the native animal life is being exterminated and if records are not made at a very early date the possibility for preserving the history of the local biota will have passed beyond recall. This fact was never so forcibly impressed upon the speaker as a year or so ago, when he visited a region about four miles north of Lincoln Park, where in former years land mollusks were very abundant in a grove of noble trees, and found the locality covered with modern flat buildings. Not a vestige remained of this little patch of native forest. This is but an example of the changes which are taking place not only in and about Chicago but about other large cities as well, and if we would preserve the history of the original natural resources of these regions we must act at once. Future generations will have to depend on the printed documents and collections made by us of the present generation for their knowledge concerning the indigenous natural features.

With the end in view of not only preserving the local natural history on the printed page but also of handing down to posterity collections representing the actual existing forms of life, the Natural History Survey has planned to have deposited in the Academy a complete collection of each branch of science. Thus far a collection has been made which illustrates each bulletin that has been published. This material is prepared for both exhibition and study. The molluscan collection is the largest and most complete, containing specimens from all of the regions mentioned above and embracing many local geographic variations of great interest. The bird exhibit is next in comprehensiveness and is followed by the paleontological collection. The local rocks, minerals and plants are also systematically arranged and the insect collection contains a large percentage of the local species.

It is the aim of the Survey to make the work as broad and comprehensive as possible and various publications will, as indicated by those already published, deal with the subject from a systematic and ecological as well as an economic standpoint.

It is the bounden duty of every local scientific organization to first make known the material resources of its immediate environment and to prepare such collections as will serve to indicate the nature and extent of such resources. The speaker believes that the natural history survey now being conducted by the Chicago Academy of Sciences is performing this duty, perhaps not as well as might be wished but at least as well as its resources will permit.

Mr. Baker.—"I shall be glad to answer any questions. I think we might have a very interesting discussion of local work. It has been said, I think, by Dr. Goode, that it was the duty of every museum first to exploit its own environment, and then to branch out to other parts of the world, and so, being a small institution and having small resources, the Academy has exploited its own neighborhood first."

Dr. Wilson (Philadelphia Museums).—"I would like to ask the speaker what has been done with reference to a study of the early Indian tribes in this region?"

Mr. Baker.—"Dr. Phillips of Evanston has been doing some work of that character. I do not know at the present time what has been accomplished, but the intention was to publish his researches as soon as he had them in shape."

Miss McIlvaine (Chicago Historical Society).—"The Chicago Historical Society has had an opportunity to do something toward a survey of the Indian inhabitants of this locality, having been very fortunate in having among its members a number of men who were fond of the woods, trampers and bicycle riders, and they have gathered the relics that were accessible in the spring, such as lay immediately on the surface. Not only have they arranged these systematically, but they have also made elaborate maps of the localities, some of them going into great detail and showing the exact situation where the particular relics were secured. Such an exhibit as this was purchased last year by the Chicago Historical Society. It has not yet been installed, but a large portion of it can be seen, and it is the intention of the Society to add other collections that have been made by private individuals throughout this region."

Mr. E. E. Blackman (State Historical Society, Lincoln, Nebraska).—"Is this chart or map that you speak of to be published by the Historical Society?"

Miss McIlvaine.—"It is to be published by Mr. Albert Scharf, who made the final investigation. The Society will publish a new edition of

it, together with detail maps. I have a few of these maps at the Historical Society, which I shall be glad to give you when you visit there."

Mr. Baker.—"It had escaped my mind for a moment that the Chicago Historical Society has been doing a great deal of work in ethnology, and especially in this survey. I think there are others present who have been doing something along this line, among them Dr. Ortmann, from whom I should like to hear."

Dr. E. A. Ortmann (Carnegie Museum, Pittsburg).—"I can only say that I heartily agree with Mr. Baker's statements and with the work done by the Chicago Academy of Sciences. I only wish other institutions would make a beginning in this same direction.

"For four years I have been carrying on in Pennsylvania a similar work. I have not published much of it yet, but hope to do so. One thing that comes home to me all the time is that biologists in this country generally know more about the biology of Porto Rico or Central Africa than of Central Pennsylvania. I do not think anyone who begins collecting just outside his own door will disagree with me as to the number of new things to be found which he never dreamed existed there.

"I have stepped out of my back door and found a little isopod crustacean, which was known from only one place in the world, and that is Schenectady, New York. And yet I found it in my back yard.

"When my attention was called to this, I went over Western Pennsylvania and found it in several other places. Cases like that are not at all rare. They are abundant, chiefly if you investigate certain groups of organisms that are not studied by amateurs. The molluscs and butterflies, for instance, have been studied a good deal by amateurs but we do not know much about even these groups in this country. There are certain regions in the East which are well studied, and other regions that are practically unknown. I may say that we know a little about the Western Pennsylvania region, within a radius of one hundred miles around Pittsburg, but if we go into Central Pennsylvania there is a blank.

"This is chiefly due to the fact that biologists do not realize how much remains to be done. I wish to emphasize the fact, that, as Mr. Baker remarked, it should be done at once. Our native fauna is fast disappearing. Before my own eyes, in the last three years, the beautiful mussel fauna of the Ohio River has disappeared at certain points. Three years ago I found quite a number of mussels below Pittsburg, and the following year I found only a single living specimen. Now they are all gone. That is in a stretch of about twenty miles below Pittsburg, and the whole fauna existing there four or five years ago has disappeared.

The same thing is going on before my own eyes in the Upper Allegheny River. The oil refineries at Oil City pollute the water for a distance down the river of perhaps forty miles, and the rich mussel fauna has disappeared. This happened between 1906 and 1907, and is why I wish to emphasize, that as Mr. Baker says, we cannot afford to lose time. In five or ten years it will be too late."

Mr. L. W. Jenkins (Peabody Museum, Salem, Mass.).—"I would like to say that the Peabody Museum of Salem has been making local collections for many years. They have a large collection of archaeology and also a map of the county showing the various shells found in that region. They have also a large collection of the geology of the county, a botanical collection, a collection of birds, and so forth. The only part that has been published is the geology and mineralogy of the county, in a monograph published by the Essex Institute something like a year and a half ago.

"They have large local collections that are ready for study when anybody comes along who is interested in that line of work. At present the only officers are Mr. Morse, who is interested in zoölogy, and is now doing some work with the hope of publishing it, and Mr. Sears, the geologist, who has already published his results, and myself. I am working on the ethnology of other localities."

Miss Elizabeth J. Letson (Buffalo Society of Natural Sciences).—"I would like to say on behalf of the Buffalo Society that last spring we commenced to record the Indian trails, village sites, and the burial places of Erie and Niagara Counties. I believe a bulletin will be published very soon by one of the members of our Society. The records were made on the maps of the Government survey. That is the first time records have been made in Buffalo."

Mr. Blackman.—"I bring a message to you from the State Historical Society of Lincoln, Nebraska. It does my heart good to hear of archaeological collections that are to be published and illustrated. I am very much pleased with this matter of maps of Indian trails. In Nebraska the same work is going on. We are preparing now a chart of the old trails across the State of Nebraska. The Daughters of the American Revolution, assisted by the daughters of this society, are planning a chart of these trails and a movement is on foot to this end. We are still a new state and we still have material at hand.

"Many of these old trails may yet be seen, and we are recording them as well as the old records of the early traders who are still living and can tell us where these trails lead. The archaeology of the state is being

worked out slowly and I hope that this branch of the science will not be neglected, because I am very much interested in anything looking to its development."

Mr. L. L. Dyche (University of Kansas, Lawrence)—"The State of Kansas is interested in work of this kind, and especially in one of the famous trails in the western part of this continent, known as the Santa Fé Trail. Certain ladies interested themselves in the matter of marking this trail a few years ago, and caused collections to be taken up from the public schools all over the state, each pupil giving at least one penny. At the present time the old Santa Fé Trail is being marked in a manner by which it will always be known, starting at Westport and Atchison and going through the State of Kansas. It had been slowly obliterated by the conversion of vast tracts of land into farms, and in a very short time it would have been impossible to trace its course. It is being well marked, and in time the State Historical Society will publish a pamphlet showing exactly where it went."

Mr. William A. Bryan (Bishop Museum, Honolulu).—"I would like to remark that as far away as Honolulu we agree upon the policy of doing things now. Most ethnologists know that the worship of the old Hawaiians took place in a temple which was known as a 'kaow.' Frequently those kaows were located in the very best agricultural land, and as years have gone by we have become more or less mercenary in our agricultural development, and these kaows have been torn down and obliterated to such an extent that we have been very active in preserving their names, history, and locations. The Bishop Museum has done a great deal towards a survey of the kaows of the group. The Historical Society has done much toward collecting the data which accompany that survey, and several hundred kaows have been located definitely and data are being collected. We are carrying the work still farther and locating the kaows on maps of the group, and the Historical Society is assisting in this work by marking or at least locating a great many of these historical points."

Dr. Oliver C. Farrington (Field Museum of Natural History, Chicago).—"I would like to mention one illustration of the need of haste in this matter. For the last ten years I have had my eye on an especially well defined ancient beach of Lake Chicago at 120th and State Streets, with a view to photographing it as a record of the ancient lake. I failed to do this, however, and when I went there last fall, although there had been no houses in that vicinity for all that time, I found it all but covered with newly built houses. Thus, I was just able to get the last record of that

beach That simply illustrates the need of all possible haste even in topographic features, in a great and rapidly growing region such as this."

President French.—"Following the alphabetical order, we will next have the pleasure of listening to a paper on 'The Field of the Small Museum,' by Mr. George L. Collie, curator of the Logan Museum, Beloit College, Wisconsin."

THE FIELD OF THE SMALL MUSEUM

There is a marked tendency in one or two of our north-western states to establish small local museums in connection usually with the town libraries. This movement is commendable, but it needs guidance and direction. Several museums in the same region are engaged in collecting without reference to the work others may be doing. The curators of small museums are not acquainted with the problems of museum administration, nor with the possibilities that lie in coöperation with near or remote museums. The large museums pay little attention to their small brothers. They have all they can do to attend to their own troubles without inviting others. On the other hand the curator of the small museum does not, as he ought, seek advice from those of more experience. The result is that there are a number of museums springing up, each practically duplicating the work of the other and none of them accomplishing what they might did they labor with a common understanding.

I feel very strongly that this association can perform a very useful service by issuing through some committee a bulletin relating to the small museum, giving advice and making suggestions which those of wide experience in the larger fields could so well furnish to their co-workers in the smaller institutions. If the cause of museums is to advance, if they are to fill an important rôle in the field of education, then there must be more coördination in the movement, some central brain must direct matters. This association can do some such work better, perhaps, than any other agency, at least at the outset.

After these preliminaries I would like to set forth what, in my opinion, constitutes the field that these smaller institutions should try to cover, especially those which are connected with an educational institution. They should collect along one or, at most, two lines, making complete local collections supplemented, of course, by all the material that may be obtained from other sources along these special lines. This is not a new idea, but it has been carried out in the museum with which I am connected and the experience there may bear repeating.

It must be remembered that the small museum not only has limited funds at its disposal, but also a small amount of space for exhibition purposes, a small curatorial staff and worst of all it ordinarily possesses a great lot of miscellaneous objects, much of it junk, to classify, catalog, label and exhibit. The museum at Beloit College fifteen years ago may be taken as a typical example. It was housed in a dark, dusty, unheated and locked room measuring 35×65 ft. It contained a small collection of Ordovician fossils, a few minerals, some of them being choice specimens, a lot of rocks accumulated from the Wisconsin Geological Survey, two spool cases of bugs and butterflies, a few birds and mammals, some old crockery, embroidered work made by representative needlewomen of Wisconsin, some silver trophies won by a local fire company and a miscellaneous lot of relics of the sort ordinarily found in such places. It seemed to the curator that such a collection was undignified for a college museum, that it served no useful purpose nor valuable end and that another type of museum should be sought. The materials of the collection were therefore divided among the several departments of the college where they naturally belonged, while that which belonged nowhere was removed to a room by itself. A few arrowheads and stone axes that were found in the rubbish were taken as a nucleus for a new museum, which it was resolved should be one of archæology, and of nothing else.

Our choice of a field was partly determined by local conditions, as it always should be in such cases. Wisconsin is rich in archæological remains and the state offered at that time peculiar advantages for the development of a museum of that character. Then at the very outset the museum was fortunate in securing a friend who was greatly interested in that particular subject, Mr. F. G. Logan of this city, who gave the museum a great impetus by donating the Rust collection of materials from Southern California and Arizona. Then quickly followed the gifts of the Perkins, Elkey, and finally the Ellsworth collections largely composed of Wisconsin artifacts. Mr. Logan also established a good fund for the maintenance of the building and for the purchasing of further collections, the only stipulation being that the income should be devoted to purely archæological purposes. If the college had retained the old general museum neither Mr. Logan nor any man of wealth would have given one copper to it. By making it exclusively a one-idea collection it was comparatively easy to secure the assistance of men interested along similar lines.

As a result of this policy the Logan Museum has a fairly representative general collection from the United States, and a large and complete collec-

tion from Wisconsin. I doubt whether as good a collection in stone and copper from that state will again be gathered under one roof. All this has been accomplished in less than fifteen years and the results in this case at least have justified the position taken at the outset, namely, that it is wise to develop one department of knowledge rather than several, especially when the limitations of the small museum are to be considered.

The question may now be asked: Of what value is such a museum when it is once secured? It is located in a small town of 15,000 inhabitants and in a small college which averages 400 students. It cannot fulfill the purposes of any of the larger museums in any direction. It cannot reach large numbers as an educational agent nor can it be used in any large degree as a research center. What purpose then may it serve? It must be devoted chiefly to the use of the college students. It is true the museum is open several hours a day and it is freely visited by townspeople and their guests and also by pupils in the public schools. Lectures are given on archaeology which are open to the general public and every effort is made to bring the public in contact with the museum in a helpful way. Primarily, however, the museum exists for the students of the college. It forms the basis for a course in American archaeology open to sophomores and between forty and fifty take the work each year. Such a course could not be given in many American colleges and there are universities where it would not be feasible to offer it, but it has a place in the college curriculum provided there is a good working collection for illustration. It is the presence or absence of a good museum that should settle the question of the teaching of archaeology in the college, rather than the pedagogical quibble whether it has a place in the curriculum or not. I have thus briefly outlined to you one solution of the problem of the small museum. In general I believe these institutions would be benefited by following out some such line of definite work, the exact nature of which would be determined by local conditions and opportunities.

Miss Bessie Bennett (Art Institute, Chicago).—"There is one point mentioned by Mr. Collie that in my opinion, from my experience in the Art Institute, would be a very good thing to follow out, and that is the concentration of the knowledge of the larger museums in some form to be presented to the smaller museums. It would take quite a burden from those who have to supply such knowledge in the larger museums, if we had some special place where we could give forth our experiences for

the benefit of the smaller organizations, and it seems to me that the American Association of Museums could do nothing better than to establish some such repository or exchange. Perhaps not so much in the form of a bulletin as in the form of some general place of exchange where the smaller museums could inquire of the larger museums as to their experiences."

Mr. Dyche (University of Kansas, Lawrence).—"You provide a course for students in a particular line, but what do you do with them in the other lines? In my experience it is necessary to provide a very considerable number of courses to satisfy the desire of a large number of students."

Mr. Collie.—"That is a natural question to ask, and it is one that I have thought of a good deal. I did distribute the different materials that were found in the old museum, to the different departments of science. But I very much question the desirability of making a museum a general hodgepodge, and in an institution which has small means for its work, it seems to me it is better to develop along one branch of knowledge in a fair way, than to attempt to develop many branches and secure a great many incomplete collections which are practically worthless. That, it seems to me, is what should be done in a small museum; of course, in the larger museums, it is very different."

Mr. Dyche.—"In my position as a teacher and museum worker with the State University, which is at the head of the public school system in the State of Kansas, for the past five or ten years I have been asked by school boards over the State, and State Superintendents and various persons, to give advice regarding the building up of a very considerable number of museums which have been started in what we call in Kansas, 'County High Schools.'

"I advised these workers in small museums in the high schools to commence their collections by securing types of the specimens that can be found within a few miles of the schoolhouse, say within five miles. If they are very ambitious, I advise them to make as good a collection as they can of the county, and with a few of the smaller institutions where their ambitions are very high I have advised them to make as thorough an investigation as they can of the specimens in the State. Being very ambitious myself, I have undertaken to make a collection of the birds of the North American continent. Extending over so much territory myself, I have advised these people to follow the same line that I did, *i. e.*, to first collect types and then orders and families of as many different groups as possible. I think perhaps it would be better to advise them to concentrate all their strength on one line, but I am seeking for information on that point."

Mr. Miner (American Museum of Natural History, New York).—"It seems to me there is one great field that has been omitted, and that that field is in connection with the larger museums. Many of these smaller institutions may be located in regions where they have special facilities for making collections of such material as Dr. Ortmann has spoken of, material which is rapidly disappearing from the neighborhood and which must be secured at all hazards. If these small museums should undertake this work I know the larger museums would always be ready to take advantage of such an opportunity to arrange mutually advantageous exchanges. That, it seems to me, is one of the fields which should be covered by the smaller museum."

Dr. W. P. Wilson (Philadelphia Museums).—"It would seem to me that this small museum of Beloit College has done a kind of work which is extremely valuable for original research, that is, it has preserved a lot of collections, and it has stimulated persons to aid in obtaining valuable material which might not otherwise have been brought together. It seems to me from what the speaker has said that it must have gathered a large collection from its neighborhood, and for that reason it seems to me it has done important work which any local small museum might be proud of.

"I take it that justice perhaps was not quite done to the other departments of that institution and I do not see how a department of zoölogy can be conducted without the professors accumulating certain lines of illustrative material which might be said to be the nucleus of a museum or not, just as you please, but must be used for daily work, and that idea of course should be stimulated to the utmost for the advantage which comes in the teaching from such specimens."

Mr. A. H. Griffith (Detroit Museum of Art).—"It seems to me that a museum as just described would be like a college which proposed to make all preachers or lawyers or all doctors. There are medical colleges, and there are colleges of law, and there are colleges for ministers, but in a college where you do not thus specialize, it seems to me that a small museum cannot confine itself to one line and be of value to all the students. That is too much like the teaching of art in our public schools, which I look upon as largely a failure for the simple reason that it is teaching the artist only, forgetting that in a room of sixty or one hundred pupils there are brick masons, stone masons, carpenters, blacksmiths, cabinet makers and possibly one artist. Now, to be of value to that whole school, it seems to me that the teacher ought to be a person of the widest possible experience, one who could today give a lesson to the

sign painter and another to-morrow to the designer and possibly the next day to some other tradesman or craftsman, and not confine the work of the school or the facilities of the school to any one line.

"Now, a small museum may develop along a certain line, but it certainly ought not to discard all the other material that is brought to it. In my opinion it should receive that material and keep it until such time as some historical or scientific society or some organization interested in that particular branch desires to care for that material, which otherwise would be lost."

Dr. Skiff (Field Museum of Natural History, Chicago).—"Mr. President; I hope I have been mistaken in assuming from the remarks of the last speaker that he doubts the benefit to a mason or a metal worker or a carpenter of the impressions that Art in any form will make, not alone upon his product, but upon his future social life."

President French.—"Mr. Griffith is the director of the Art Museum of Detroit and he is naturally not at all prejudiced against Art."

Mr. Griffith.—"Not at all; we foster the art side, but here in Chicago Mr. Skiff has one museum and there is another at the Art Institute and there is an historical society and all these work along their different lines, but in Detroit there is only one museum, and where there is but one museum, it seems to me that it ought not to neglect the smaller things. Possibly I did not make myself plain, but that was the idea I had in mind."

Mr. Head (Chicago Historical Society).—"Mr. Chairman; I wish to give an illustration of the value of the suggestion made in regard to the small museums by one of the speakers. When I was a boy I studied at the Casenovia Institution at New York and the president was somewhat interested in geology. The country there abounded in what was known as 'Trenton limestone,' which was full of trilobites, and the president used to pick out perfect specimens of trilobites by the hundreds. He corresponded with various institutions all over the world, as well as institutions in this country, and exchanged these trilobites for other specimens and thus obtained a remarkably fine collection from all over the world.

"I simply wanted to mention this as an illustration of the value of the suggestion made by one of the preceding speakers. When I thought about those trilobites, it also reminded me of an instance which the younger people present may not appreciate. In the days of my youth there was a book called, 'Vestiges of the Natural History of Creation,' which was not exactly a scientific book. Among other things it attacked

the theory which was pretty universal at that time, that the world was only six thousand years old, and gave a great many illustrations combatting that theory. I remember that the clergyman where I attended church, at one time, found that that book had been read by some of his parishioners, and he proposed to simply demolish it. So he took up this question of the age of the world, and the argument in the book which was based upon the fact that these trilobites were found imbedded in the rock through that part of the state, and he said that it was simply a piece of blasphemy to claim that it had anything to do with the age of the world. He said it would be just as easy for God to make those rocks full of trilobites as it would be to make them without." (*Laughter.*)

Mr. Charles C. Adams (University of Chicago).—"It has been my fortune to examine a rather large number of small college museum collections and I can make the statement that they are, as a rule, pretty well covered with dust and in a chaotic condition generally. There are exceptions, of course, but I should say that that is the usual condition of the small museum. If you bear that in mind it seems to me that we can better understand the real situation. Many, of course, would prefer to follow the middle line, as Mr. Griffith has suggested, that is, to take care of some things as best you can, put your primary efforts there and then do what you can with the other things. That is a system which many of the institutions have been forced to follow. It seems to me that we should bear in mind the two extremes, that of having a good many things in good condition, or a large number of things largely in chaos."

DISCUSSION OF THE ADVISABILITY OF SEPARATE SESSIONS OF ART AND SCIENCE

Following a detailed explanation by President French of the scope and work of the Chicago Art Institute, a short discussion was had as to the advisability of holding separate sessions of the sections of art and natural history. The text of the discussion follows:

Mr. William Henry Fox (John Herron Art Institute, Indianapolis).—"Mr. President; it may seem to be a little late to speak of this matter, but it seems to me that my opinion has just taken shape sufficiently to give me the courage to speak of it. When I came to this conference I was hopeful that we would have the art membership of the Association and the natural history membership so divided that we could hear the papers in a concentrated form. I speak now with a certain amount of personal feeling, because I am obliged to go away tonight, and may lose a good

deal. I came for the purpose of being instructed and if it is not too late now to make a change in the program, might we not take this matter up for consideration at the next session of the Association? It seems to me that in the course of time the mass of papers will become so bulky that it will undoubtedly take more time than we can possibly give. On the other hand, if the contribution of papers in each section is small, it enables us to attend the balance of the sessions of the other section.

"At all events, the objection made by some of the members, whose opinions I believe, Mr. President, were asked regarding this matter, seems to be met by simply referring to the very complete and beautiful record published last year. There are the proceedings complete; there are all the papers and the discussions, and it seems to me no members would lose any part of the proceedings if they could rely upon the journal published subsequent to the meeting. For that reason I hope that those who think about this as I do, will take up for serious consideration whether we should have divided meetings at the next convention."

President French.—"It seems to me a good time for the discussion of this question, which I understand to be that of establishing a chapter of art museums within the Association, which shall at times hold different sessions so that when the naturalists are discussing the proper method of preserving insects, for example, we might be considering something regarding the preservation of pictures."

Dr. W. P. Wilson (Philadelphia Museums).—"Mr. President; up to the present time we certainly have not had more papers presented than can be read during the two or three days that our meetings will continue and for this session at least I should be positively opposed to any separation. I would favor, however, having the art papers together in succession, if anyone so desires, and the other papers, which cover everything on the face of the globe, together; but personally, for the present, I wish to hear the art papers and the discussion which follows. I wish to hear of the educational work of all museums and to become acquainted with the personnel of the art museums, and I would be decidedly against a separation at this time, without committing myself for the future.

"Inasmuch as the gentleman from Indianapolis must leave, I would favor the reading of the art communications first, if that meets with the approval of the society."

Mr. F. J. V. Skiff (Field Museum of Natural History, Chicago).—"Mr. President; I presume that only by unanimous consent, or by some consent, can the report of the committee, seriously appointed for the purpose of arranging the program, be changed, and, anxious as we

always should be to accommodate fellow-members, since the majority intend, as I believe, to remain through the session, I doubt the advisability of setting the example of lightly turning aside the report of a committee definitely appointed for a definite purpose, and I therefore trust that the program committee's report will be carried out exactly as they have submitted it.

"On the general proposition, I should consider it quite unfortunate if the different classes of museums separated from the main body and selfishly discussed their own little affairs exclusively among themselves. I think we should stand together. I hope we shall never have separate meetings in this organization; for we each need the sympathy, the appreciation and the assistance of the other." (*Applause.*)

Mr. George Corliss (Art Institute, Chicago).—"Mr. President; I do not believe in the separation that has been proposed, but I think, inasmuch as there are members here who are interested especially in art museums, as well as those who are interested in natural history museums, that it would be well to sandwich in a little of the art discussion and paper reading with the natural history. Now, we have had nothing but natural history this morning and the program, as I understand it, will continue along that line. Would it not be a relief, then, to the natural history members to listen to a little art?

Mr. E. E. Blackman (State Historical Society, Lincoln, Nebraska).—"Let me suggest, if the program permit it, that at least an hour of the general sessions this week, or possibly longer, be devoted to a round-table to be conducted by those especially interested in art, another to be conducted by those especially interested in scientific museums, and still a another for those especially interested in historical societies and museums. I believe these three will cover the representation here.

"I am myself interested in historical museums, but I do not wish to miss the general papers and the discussions of the departments of art and science. Still, I am especially interested in historical societies, and therefore I suggest for the consideration of future committees on program that a round-table be established so that we may all separate and get acquainted with our brothers during the special meetings at the round-table, and during the general sessions of the Association we may become acquainted with our cousins, if you please."

Mr. Fox.—"I do not wish the Association to think that I am pleading my personal conveniences in urging this change. As a matter of fact, I tried to make it clear that I only wanted it discussed for the purpose of our future guidance. It occurs to me to ask what we are going to do if

we have a great mass of papers accumulated in the future. Will we extend the sessions beyond the three days, to four or five or six days? There must be some limit to it. We must provide against that possibility, and as our Association grows, and the interest in this work increases, as I suppose it always will increase, we will probably have any amount of contributions upon any and all subjects, and I would like to have some way to satisfy myself or to satisfy the Association that we can handle the vast mass of material that we can get in the future."

Secretary Rea.—"I think one of the great advantages of our Association at present is its small size, and considering the rather small number of active museums of either art or science in this country, I am not at all sure that we are going to become a very large association for a great many years to come. I think there is a very strong feeling among the scientific men at least that the art people and the science people have much to learn from each other, and that the apparent difference between us is more imaginary than real. I therefore hope that these Association discussions may serve to bring us much nearer together, much nearer a common ground, than we sometimes imagine ourselves to be.

"If we do become too large for the reading of all the papers in the time allotted, it is possible that we might adopt a plan which I know to be in use in a large association of something like eight hundred members. In that case the papers are printed in advance and sent to the members and read and carefully digested before the meeting. When the meeting arrives, the whole time is given to discussion. I do not know whether we shall ever come to that or not, but it seems to me an interesting suggestion."

Mr. Henry L. Ward (Milwaukee Public Museum).—"Speaking for the committee, I can say that we are not embarrassed by having too many papers to fill the time. It seems to me that the papers will not overrun the time at all, and the papers which were distinctly on art were very few in number. I do not think that it would be good policy to tie the Association or future committees to an assignment of papers where they might not be desirable, but if at any time it becomes necessary to make some such provision, in order not to carry the meeting to an undue number of days, the future committees can, in my judgment, make that selection when the time comes."

Mr. Charles M. Kurtz (Buffalo Academy of Fine Arts).—"It seems to me that if the scientific, historical, archaeological and art papers are considered in groups by themselves, then all who are able and who desire to attend all the sessions can have the privilege of listening to all the papers,

while those who cannot give the time for the whole meeting can attend the particular session or sessions which pertain to their own institutions. This, however, is only a suggestion for the future."

President French.—"I think it must be very gratifying to all of the art institutes to see this opposition to separate sessions. It is certainly very pleasing to me and a little unexpected that the scientific gentlemen should desire to listen to our art papers. We have been listening with great interest to their scientific discussions, so that I hope the feeling is mutual.

"Of course, there is no question before us; we are in a committee of the whole, as it were, and we have no intention of taking a vote, but we can perhaps proceed, as I have heard that they do in Quaker meetings, where they discuss the subject freely and take no vote, but the presiding officer announces the sense of the meeting. Personally I am very much pleased; I thought you would all jump at the chance of having separate sessions."

Dr. Wilson.—"Mr. President; I hope that the papers will be so sandwiched in that no one can get away. Here is a paper on fumigation announced. What an ugly topic that is, and how under the sun can it be related in any way to art? Why, consider all the fine textiles and the ancient textiles, and the handsome carvings of woodwork that are likely to be eaten up by certain kinds of insects that are coming in from foreign countries! I think this would be one of the most interesting topics of all for the art side. Therefore, I say that I hope everything will be so arranged that nobody can get out of the room for fifteen minutes without losing much that is of interest."

The hour of adjournment having arrived, on motion of Mr. Corliss of the Art Institute of Chicago, a recess was taken until 2:30 o'clock p.m.

SESSION OF TUESDAY, MAY 5

Afternoon

The afternoon session was called to order by President French at 2:30 o'clock, and, following the regular program, a discussion of the advisability of publishing a directory of museums was taken up.

DISCUSSION OF THE ADVISABILITY OF PUBLISHING A DIRECTORY OF MUSEUMS

Secretary Rea opened the discussion by emphasizing the value to museum administrative officers of conveniently accessible information

which will enable them to compare the relative efficiency of various museums. After showing the inadequacy, in many cases, of annual reports and of the list of museums of the United States and Canada published by F. J. H. Merrill¹ in 1903, the following items for incorporation in a museum directory were suggested.

1. *Name and location.*
2. *Population and assessed valuation of city or town.* This information is desirable in the case of public museums as an indication of the relative support given to museums in various communities.
3. *Staff.* This item should include the names and titles of all officers, together with a classified enumeration of the number of minor employees, e. g.—guards, janitors, engineers, etc.
4. *Nature and Scope of the Collections.* The extent of museum collections can be fairly expressed only by somewhat detailed enumeration. Thus 10,000 zoölogical specimens representing fairly evenly the chief zoölogical groups means something very different from 10,000 insects or shells. The following classification of biological and geological collections is offered as a purely tentative suggestion. It is intended that the number of specimens in each department should be given with the \pm sign when based on estimate only. *Underscoring* departments most active at the present time will further increase the value of the work. Similar classifications will be required for other departments, e.g., art, history, anthropology, etc.

Zoölogy.

Shells, on exhibition, in storage.

Insects, on exhibition, in storage.

Other invertebrates, on exhibition, in storage.

Fishes, on exhibition, in storage.

Reptiles, on exhibition, in storage.

Birds, on exhibition, in storage.

Mammals, on exhibition, in storage.

Other collections, economic, etc.

Types, figured specimens, or other material of special interest.

¹ Merrill, F. J. H., *Natural History Museums of the United States and Canada*, N. Y. State Mus., Bull. 62, Albany, 1903.

Botany.

Cryptogamic herbaria.

Phanerogamic herbaria.

Other collections, economic, etc.

Types, figured specimens, or other material of special interest.

Geology.

Minerals, on exhibition, in storage.

Rocks, on exhibition, in storage.

Other collections, economic, etc.

Material of special interest.

Paleontology.

Invertebrates, on exhibition, in storage,

Vertebrates, on exhibition, in storage.

Plants, on exhibition, in storage.

Types, figured specimens, or other material of special interest.

5. *History.* A brief historical sketch frequently serves better than statistics to indicate the traditions and tendencies of a museum.
6. *Financial Support.* The following points seem essential to determine the relation of the museum to its constituency:
 - I. Income from:
 - (a) Endowment. (b) City, state or nation. (c) School, college or university. (d) Society or association. (e) Subscriptions, memberships, etc. (f) Admission fees. (g) Other sources.
 - II. Building, cost, paid for by, owned by, maintained by.
7. *Relative stress* laid on:
 - (a) Exploration. (b) Research by staff. (c) Teaching in school or college. (d) Public school work—indicate methods used. (e) Instruction of general public. (f) Local collections. (g) Other activities.
8. *Library.*
 - (a) Extent. (b) General character. (c) Whether intended for use of staff or public, or both.
9. *Publications.* List, with scope of each series.
10. *Attendance.*
 - (a) Conditions and restrictions. (b) Statistics.
11. *References* for further administrative information.

Mr. Frederick A. Lucas (Brooklyn Institute Museums).—"Mr. President; I think that every one will agree that such a publication would be of great value. Our English friends have issued just such a directory, but in rather poor shape. It gives the very data that Mr. Rea has mentioned, in regard to the museums of Great Britain, covering exactly the same ground. In talking it over with Mr. Rea, however, the cost of publication seems to me to be the great drawback, unless it can be financed by the Carnegie Institution."

At the request of President French, Vice-President Lucas here took the chair.

Chairman Lucas.—"I should be glad to have a discussion of the desirability of this project and to have any suggestions offered as to the method by which it may be published."

Mr. Henry L. Ward (Milwaukee Public Museum).—"I can appreciate Mr. Rea's point of view. I usually look over the annual reports of museums that come to me, with very much the same thought in mind, apparently, as Mr. Rea has; that is, to make a comparison of the efficiency of our work with that of other institutions, so as to see how we are comparing with them and to get ideas that may be of value. I have used the Directory of Museums, published by the New York State Museum, somewhat, and have been impressed with the practical impossibility of determining the value of any collection by the statistics that may appear in such a directory. A museum that really has very little of value may appear in such a directory as of equal or greater value than some museum that has a very decided value. There can be no comparison between such museums based solely on an enumeration of the number of specimens in the different departments. The specimens may be entirely without scientific value, altogether inferior, things that a good museum would throw away, or each may be as choice as can possibly be obtained. I have often been very much disappointed in looking at a museum that made a very good showing in the directory that has been published.

"There are certain features of museum information that can at present be obtained from *Minerva* which perhaps do not appear in any other publication. You can find out just what any other museum is getting, practically, in the way of an appropriation, you can find out in bulk the contents of the museum, and what its purposes are, but it does not give very much.

"I do not really know whether the information sought for by Mr. Rea is worth what it would cost. It is something that interests only certain

ones and whether it really pays for the great amount of labor involved and the considerable cost of bringing the information of all the museums of the country together is rather doubtful. It seems to me that the same amount of money and energy applied in some other direction might be of more permanent value."

Dr. W. P. Wilson (Philadelphia Museums).—"I believe the time is coming when we shall establish several institutions or departments which will aid in the systematic management of museums. One institution or department will develop a system of exchanges of material and do that in some thoroughly scientific way so that institutions which have surplus material will distribute it among other institutions large or small, which have not that kind of material, but need it for educational or other work. I believe that we shall come to a point by and by when we shall establish exchanges between museums employing experts. Some of us will be able to bring over from Europe, possibly, great experts who will spend, in accordance with previous arrangements, a month in one museum, doing certain lines of work, and a month in another museum and two months in another, and be glad to do that in order to study the special kinds of material in which each particular expert is interested.

"That sort of organization between museums, I believe, has not begun yet, and I regard this publication which Mr. Rea has proposed as a compendium of the information on which much of that work is to be based. I regard it, no matter what it costs, as very valuable and something that should be done.

"I believe that if we as museum curators and managers, deeply interested in museums, set our minds to do that sort of thing, it will not be very difficult to get it done. I believe that if a committee were appointed from this organization, composed of the various managers and curators and directors, and that committee should go to the Carnegie foundation, it would be a very strong representation. I think we could get the money to publish such a useful book, if it were shown of what assistance it might be in future educational work and in coöperation of the museums in this country and I support very strongly the idea of starting out and, in one way or another, working to fulfill the end which has been proposed by Mr. Rea."

Mr. E. E. Blackman (State Historical Society, Lincoln, Nebraska).—"When the manuscript was prepared, we would then doubtless be able to find publishers. I think if this Association were to appoint a committee to take up this matter and prepare the manuscript for such a book, there

would be no great difficulty in finding publishers, and I would suggest that a movement be made along this line at this meeting."

Dr. Wilson.—"I am going to propose two things: in the first place, to make the proposer of this scheme, Mr. Rea, a member of a committee, and I would say the chairman, to collate this material; in the second place, that every person connected with any museum carefully work up the material of his own museum and send it to Mr. Rea. He is a young and energetic man, and I am sure that in this scheme in which he is intensely interested, that he would work late into the night to see it accomplished, and I therefore make these suggestions as a motion if anybody else will support it."

Chairman Lucas.—"Is there a second to the motion?"

Mr. Blackman.—"I will second it most heartily."

Dr. Wilson.—"I desire to make the further suggestion that Mr. Rea print an outline of what he wants, and if any of us can add anything to it, before he prints it, that we do so, and that the outline be printed and sent to all of us. In other words, if we have anything to add, or anything which we think should be in such a book, we will have an opportunity of suggesting it."

"But the first thing is to get an outline. Mr. Rea has been studying this matter and I suggest that this outline be prepared by him and given to all of us, and if we can add anything to it to do so and send it in to him."

Mr. Blackman.—"And that the bill be paid by this organization for the printing."

Dr. Wilson.—"That so far as the expense of starting this work and printing this outline is concerned, that this be paid by the Association. It would be a matter of only a few dollars. I do not suggest that Mr. Rea be paid for his work; I know that he does not wish to be paid for his work because it is something that he loves to do and something that he will be glad to do, but I suggest that the printing and the typewriting and everything of that kind be paid by the Association, if Mr. Rea will undertake the work."

Chairman Lucas.—"It is moved and seconded that Mr. Rea prepare a circular outlining the information he desires this directory to contain, and that this be sent to each member of the Association to be filled in and returned to him. Do I state that correctly, Dr. Wilson?"

Dr. Wilson.—"I would like to add that it be sent not only to the members of this association, but to every museum, large or small, that can be found in the United States, or on the North American or South American

continents. Let us make it as broad as this organization is meant to be. We now include museums in South America, and let us have every museum on the Western Continent in it.

"The getting together of this material in systematic form will be a very strong argument to induce the Carnegie Foundation to publish it."

The question was then called for, and the motion being put to a vote, prevailed unanimously.

President French here resumed the chair, and reverting to the regular program, called for the submission of papers. The following paper was presented by Mr. C. G. Rathmann, director of the Educational Museum, St. Louis.

THE EDUCATIONAL MUSEUM OF THE PUBLIC SCHOOLS OF ST. LOUIS

The museums of our country have in late years extended the scope of their work of disseminating knowledge to a field where it is of inestimable value. They have opened their great store houses of information to the public schools and they ask the teachers to make extensive use of the wonderful things from all parts of the world in connection with their regular school work. Some of the museums send typical collections of illustrative material directly to the schools. Others invite the teachers to bring their classes to the institution, and give their lessons there, aided by the wealth of interesting specimens placed at their command; still others do both. In this manner the museums enable the teachers of our schools to supplement the textbook and their own description of facts and conditions by the study of real things and thereby to lend life and reality to their work. This practical coöperation of the museums with the schools is hailed by the teachers as one of the most helpful factors in enlivening the study of nature and geography, in stimulating the interest and self-activity of the children, and in making school work more enjoyable to both pupils and teachers.

St. Louis has no public museum. The Washington and St. Louis Universities, the Academy of Sciences, and the Historical Society have their own excellent museums, but these cannot aid the schools in their work.

In 1904 our city had within her walls a most magnificent Public Museum, the World's Fair. The exposition gave St. Louis the opportunity to extend to her schools the same educational advantages that

museums, in such an efficient manner, give to the schools of other cities. Through gift and purchase, the Board of Education acquired large amounts of material of the highest educational value and this material formed the nucleus of a new institution, the Educational Museum of St. Louis.

When the first attempt at a logical arrangement of the articles acquired from the World's Fair was made, it was found that much new material was needed to fill the gaps and to supply the missing links in the chain of groups and collections which were to illustrate the various features of school work. We applied to some of the large museums that are represented here today to help us and they responded most readily and generously. Large amounts of valuable material were donated by our host, the Chicago Field Museum, the Philadelphia Museums, the Smithsonian Institution and the Public Museum of Milwaukee. I am happy to have this opportunity given me to express to the directors of these institutions the sincere gratitude of the Board of Education and the teachers and pupils of the public schools of St. Louis for their liberal and efficient aid.

The Educational Museum was opened in October, 1905. It is at present located in rooms of the Teachers College and the Wyman School. Its growth during the brief period of its existence has been remarkable. From the very beginning, the teachers, realizing the great value of proper illustrative material, made extensive use of the Museum. To satisfy the constantly growing demand upon the institution, the Board of Education made a liberal annual appropriation for the purchase of new material and the general maintenance of the Museum. The present temporary quarters are becoming inadequate both as to space and proper means of arrangement, and the erection of a separate building in the near future is becoming a necessity.

The material in our Museum is grouped and arranged in accordance with the Course of Study followed in the schools. Some of the groups which illustrate lessons in Nature Study, Geography, History, Reading, and Art, are the following:

Food Products,—comprising the cereals, other plants, grains and their products; coffee, tea, sugar, cacao, cocoanut and the various spices, etc.

Materials for Clothing,—the various animal and vegetable fibres of the world and the fabrics made from them.

Other Natural Products,—as rubber, gutta-percha, camphor, cork, coal, etc., their various stages of development, and their use; material for dyeing and tanning, medicinal plants, woods, etc.

Industrial Products,—showing the various processes in the manufacture of glass, paper, leather, ink, the pen, pencil, needle, etc., besides such products as are made from the materials mentioned in the former groups.

Articles and Models Illustrating the Life and Occupations of the Different Peoples of the World, including implements, wearing apparel, models of houses, industrial products, etc.

Plants, and Models and Charts of Plants.

The Animal World, represented by mounted and dried specimens and specimens in alcohol.

Minerals, Rocks and Ores.

Apparatus for the Illustration of Physics and Physical Geography.

Charts, Colored Pictures, Maps and Objects Illustrating History.

Collections of Art Objects, and Models Used by the Classes in Drawing.

Photographs, Stereoscopic Pictures and Lantern Slides, to accompany the objects in the preceding groups.

These groups are subdivided into smaller sections, or collections of from 4 to 8 objects, each of which represents a class or family of the group, as for instance, in the case of birds, collections of wading birds, of owls, of finches, etc. Each collection is accompanied by a number of photographs, stereoscopic pictures and lantern slides.

These collections are numbered and listed in the Museum Catalogue to which, because of the rapidly growing material, two supplements have been added. With each article mentioned in the Catalogue, a brief explanation is given, as to its use, where it is found, etc. At the head of each group, a number of reference books are mentioned which are found in the Museum Library and which give information about all the specimens in the group. Copies of the catalogues are found on the desk of every teacher in the schools.

The material is sent to the schools by a wagon in the service of the Museum. The schools are divided into five sections, each of which has a delivery day once a week. The principal of a school which has its delivery day on Monday, asks his teachers on the preceding Friday to send him the numbers of all the collections which they need for the illustration of their lessons during the following week. These numbers he inserts in an order blank and sends the order to the Curator, and on the following Monday the wagon delivers the material at the school, taking back at the same time the collections used during the past week.

A brief outline of a geography lesson introducing the children to the

study of a new country, may be sufficient to show how the museum collections are put to use in the school room.

On a relief map the children determine the location, study carefully the surface features, note the proximity to or the distance from the ocean, and find the prevailing winds and their directions. After having become thoroughly acquainted with these fundamental features, the child is led to find by his own observation and reasoning and by his experience gathered in former lessons, what climate and rainfall there may be, what animal and vegetable life may be expected, what portions of the country may be best adapted to agriculture, herding, mining, lumbering, and the various other occupations of men; how the physical conditions affect the development of the country, the life of its inhabitants, its resources, its commerce, its rank and importance among the countries of the world and its relations to and influence upon these countries and especially upon our own country. They find where larger cities would be likely to be located and what articles might be exported from these places and they determine lines of transportation and communication.

Now, the conclusions that the children, under the guidance of their teacher, have made through their own observation and reasoning in studying the map, are verified by the material sent by the Museum. We take the children directly into the country by means of the photograph, the stereoscope and the lantern. We make them see the surface features, as they really are, the mountains in true proportion, the river valleys, the scenery, the natural advantages of the country, the large cities and their institutions, the people, their occupations, their homes, their manner of life, and their state of civilization.

The knowledge of the physical conditions has enabled the pupils to determine to some extent the flora and fauna, the natural and industrial products. We now place before them the typical animals, birds, insects, etc., and the raw and manufactured products, in all their various stages of development.

This illustrative material is not simply shown the children as new and extraordinary things to satisfy their curiosity. The objects are handled, observed and studied by the children, compared with each other and with such as have been treated in connection with other countries. The children determine how the products before them affect the life of the people, their intercourse with other nations, their wealth and rank, also how they decide lines of transportation, ocean trade, etc. Each child in the class takes up one of these objects and by his own reading gathers all the information he can regarding it and presents such information to the class.

By means of the photograph, the lantern slide and especially the life-like stereoscopic pictures, we take the children into the world; by means of the objects, we bring the world to them.

The intelligent study of the relief map gives the pupils the power to read the map of any country as they would read an interesting book and the power to acquire their own geographical knowledge after they have left school. The study of the museum material shows them that their conclusions drawn from the map study are true; it gives them vivid and lasting impressions of the country, and the power to picture to themselves things, facts and conditions for which we have no means of illustration.

In nature study we insist that living specimens be used for illustration, whenever they can be procured. The surroundings of every city afford unlimited means of illustrating plant and insect life, which should be gathered by the children themselves. The very collecting of this material is a practical nature lesson in itself for, while the children are gathering the specimens, their minds are busy with what they know about them and what they would like to know.

Live birds, fishes, reptiles, amphibia and mammals, however, with few exceptions, cannot be procured or cannot be handled in the school room. Yet they live with and around us. We wish to make the children acquainted with them and the Museum therefore supplies them.

How few of the graduates of the Grammar Schools in many cities know the birds that they see in the gardens and parks. To make the acquaintance of the birds, our children study the mounted specimens of the Museum. Then we encourage them to find outdoors the living birds not for the purpose of recognizing them only, but to observe them in their proper surroundings, to learn their peculiarities, their habits of life their food, their song, their means of protection, etc.

The material of the Museum is in great demand; the use of it increases from year to year. During the first year, 5000 collections were sent to the schools, during the second, 11,500; and during the first half of the present term, more than 10,000 collections were ordered by the schools. A second wagon will be put into service at the beginning of the next term.

The number of different individual collections sent out by the Museum is 1000. Many schools order the same material at the same time; hence, a large number of duplicate collections are necessary. These duplicate collections amount, at present, to 3200.

This is a brief sketch of our traveling museum, our museum on wheels. But while the circulating material constitutes the most important part of

our museum, the institution contains other features which are of signal value to our educational system. These are:

The Study Exhibits for Teachers.

The Exhibit of Educational Material from Foreign Countries.

The Exhibit of our Own School Work.

The Teachers' Library.

An exhibit of collections in circulation is placed in glass cases in the large museum hall of the Wyman School. This is the study exhibit for the teachers which enables them to become thoroughly acquainted with all that the Museum contains and gives them an opportunity to acquire, with the help of the Museum Library, such information as they need in order to use the material intelligently and profitably. No Normal School or Teachers' College can give their students the general information in all departments of science which a modern teacher must possess to go far beyond the text of the book and make the work interesting and valuable. A museum arranged in accordance with the course of study and supplied with a good reference library, can do this. Our teachers make good use of these exhibits, and many of them tell me how the study and use of the material has widened their horizon, how much better prepared they feel for the subjects they are to teach and how much more pleasure and satisfaction they find in their work.

Another department contains educational exhibits from other countries. These exhibits representing the schools of some of the leading countries of the world show the written work, work in drawing, manual training, etc., from the kindergarten to the high and normal schools; text books, courses of study, reports and statistics and school appliances; photographs, plans, and models of school buildings, etc. These exhibits give our teachers valuable opportunities to study the educational systems of other lands.

The exhibit of the work of the St. Louis Public Schools which was displayed at our World's Fair and at the Jamestown Exposition, constitutes the fourth department. The specimens of the children's work in the various branches of study will be replaced by new work from time to time in order to show visitors the status of the work in the schools at the time of their visit.

The Teachers' Library forms the fifth department of the Educational Museum. It contains the best publications on Philosophy, Psychology, Education, Science and Literature, the text books used in our own and other countries, reference books giving information on all the material in the Museum, and the best educational journals. The number of

volumes is at present about 7000, 2000 volumes of the valuable private library of Dr. Soldan, our late Superintendent of Schools, have just been presented by his widow to our Teachers' Library. A catalogue of the library is in the hands of each teacher. She may procure the books in two ways, either by calling at the library to select the books she wishes to read or by inserting the title of the volume or volumes in an order blank. The books desired are sent to her school in the same manner as the museum material. You see we make it very easy for our teachers to avail themselves of the opportunities offered by the library and I am glad to say that it is extensively used.

I sincerely hope that some time in the near future this Association will honor St. Louis by having one of its conventions within her walls and by giving us the opportunity to make you better acquainted with our Educational Museum.

Mr. George L. Collie (Logan Museum, Beloit College).—"I would like to ask Mr. Rathmann the effect of the traveling museum upon the pupils in the St. Louis schools. What is their attitude toward the geography of today as compared with that of four or five years ago?"

Mr. Rathmann.—"There is a great improvement. Formerly the teacher took the pupils on imaginary trips to the rice and sugar plantations of the South and to the silvas of the tropical regions, but the rice plant and sugar-cane and their products in all their different stages of development, the birds and insects of the tropical forests, the crude rubber, the cacao pod, the fruit of the coffee trees—these the children never saw. The teachers talked to the pupils about the wonders of the world, and the more and the better they talked about them the greater became the anxiety of the children to get into personal touch with all these wonderful things. Now we bring the world to them, and with this material before them we have their attention, their interest, and their desire to learn.

"I should very much like to have some of you go into one of our school rooms and see how attentive the children are, how eager they are to give their own impressions, how glad they are to find their own information about these things, and you would see at once how valuable it is. I have often noticed that some pupils whom I had under my own direction when I was principal of a school, did not take any interest in geography, but now these same pupils are eager to study geography under the new methods and find great pleasure in it."

Mr. L. L. Dyche (State University, Lawrence, Kansas).—"I would like to ask what the effect is upon the specimens in this moving museum."

Mr. Rathmann.—"When we sent out the first specimens we were afraid they would last only a short time, but I am glad to say that the teachers realize that some of these specimens are very hard to replace. They see the value of them and wish to keep them for their schools, and so far the specimens have been preserved very well. Of course specimens which are used a great deal must be replaced from time to time."

Mr. Dyche.—"I asked that question from a little experience of my own with a thousand birds which I loaned, from time to time, and I think I can safely say that seven hundred have lost their heads and half have lost their tails. But, while it costs more or less to make up these bird skins and they do not last very long, I think the results achieved are sufficient to warrant this additional expense."

Mr. Rathmann.—"That was our experience during the first year, but now we fasten these birds to the bottom of the circulation boxes, and the damage that might be done in transportation is in this way avoided. The teachers, after they have used the birds, send them to the principal's office, and the man in charge of the wagon, who is very careful, puts them back in their places. The teachers are not allowed to do this. Of course, during the three years that this work has been going on, we have made many improvements in the handling and preparation of our material, which we did not know during the first year."

Dr. W. P. Wilson (Philadelphia Museums).—"How many grammar schools have you in the city of St. Louis?"

Mr. Rathmann.—"One hundred and three."

Dr. Wilson.—"Are they all pursuing the same course of study?"

Mr. Rathmann.—"Yes, sir."

Dr. Wilson.—"Do you have, then, 103 collections, in a particular line, we will say, of grain or of cotton, or of birds, in case they should all happen to ask for them at the same time?"

Mr. Rathmann.—"Of the grains and other material which is in constant use, we have a very large number of collections enough to supply all the schools. But it never happens that all the schools use the same material at the same time. For instance, we have twenty-two different specimens of owls. These we divide into collections, and these collections do not consist of the same kinds of owls, because it is not necessary in the grammar schools that we should make such scientific distinctions."

Dr. Wilson.—"Certainly not. I want to get at the practical difficul-

ties, some of which I have discovered. If you are studying the question of cotton, for instance, what would you include in that collection?"

Mr. Rathmann.—"Our cotton collection contains the boll, the ginned and unginned cotton, the various cotton fabrics, miniature bales showing how the cotton is packed and shipped, cotton seeds, cotton-seed oil cake, cottolene, soap, paper made of cotton stalks, and then a series of pictures arranged in accord with these objects. By means of the objects and the pictures the child is first taken to the cotton field, then to the cotton gin, then to the levee at New Orleans to see how the cotton is baled and shipped, then to the large factories of the east, then to the cotton mills, and so on.

"In order to show that the American Upland cotton is not the only cotton, we have the Sea Island cotton, the Peruvian cotton, the silk or bombax cotton, and the cotton pods of the Philippines, etc. Furthermore, we have the crude and primitive implements which the people in the Philippines use in cultivating and manufacturing cotton, and by comparing these with the great factories in the east we give the child an idea of the wonderful progress of civilization."

Dr. Wilson.—"If a grammar school should send to you for a study in cotton, would you send them all that material?"

Mr. Rathmann.—"The cotton exhibits are divided into seven collections. The first comprises cotton bolls, unginned and ginned cotton, seeds, miniature cotton bales, etc. The second collection contains other cottons, as Sea Island, Peruvian, etc.; the third and fourth show the various stages in the manufacture of cotton fabrics; the fifth, the products of the cotton seeds; the sixth implements for the cultivation and manufacture of cotton used in the Philippine Islands and other countries; the seventh, stereoscopic pictures, photographs and lantern slides. These are all mentioned in the catalogue, and the teacher may select what she needs for her special lesson.

Secretary Rea.—"May I ask, Mr. Rathmann, if you send out with this material any instructions to the teacher or must she come to the library in order to get information?"

Mr. Rathmann.—"The catalogues contain instructions for using material. Besides this, supervisors and strong teachers present work illustrated by museum material with classes taken from the various schools. These classes show their work on Saturday mornings at the Teachers' College and in the meetings of the Society of Pedagogy."

Secretary Rea.—"When this material illustrates the consecutive steps in any process, do you consider it essential that the material should go to the students in logical order?"

Mr. Rathmann.—"As far as possible, yes."

Secretary Rea.—"How do you obtain that result without having a large part of the class in idleness while waiting for the specimens?"

Mr. Rathmann.—"We have the two-class system in our schools. One class has an oral recitation while the other prepares for the next lesson. While one class recites, the other, we will say, studies the lesson in geography which it is going to recite during the next half-hour. The latter is given the objects and stereoscopic pictures to study. We send the pictures and twenty stereoscopes, enough to supply each child with one, so as to make it possible for the children to change the pictures and go right on. The teacher has studied the objects and pictures carefully, has taken notes of all the different points she wishes to bring out, and directs the attention of the children to these points before she lets them take up the material. Then when they are ready to recite they give their observations and impressions."

Secretary Rea.—"Does this plan begin with the first pupil in the front row and go consecutively through the portion of a class which is to study that material?"

Mr. Rathmann.—"Generally; we like to do that as much as we can."

Secretary Rea.—"And the sections that are using this material would not comprise more than fifteen students?"

Mr. Rathmann.—"From twenty to twenty-five."

Secretary Rea.—"Does the last pupil get the first specimen before the end of an ordinary period?"

Mr. Rathmann.—"The study period is thirty minutes, and they have ample time to see all the material."

Secretary Rea.—"Then the first specimen goes the round of the twenty pupils?"

Mr. Rathmann.—"Yes, we see that every child is reached. I must say, however, that for some things we have not the amount of material yet that we wish to have."

Secretary Rea.—"I am speaking particularly of consecutive specimens showing the consecutive steps in a process."

Mr. Rathmann.—"Yes. We consider it important that in exhibits which show processes of development, as cotton, flax, silk, rubber, glass, leather, etc., each child should see every link in the chain of development."

Secretary Rea.—"In that case it would go to the first student in the front row and the specimens would be passed along until the last pupil in the last row had received the first specimen, in other words, until the series had been shown to the whole class?"

Mr. Rathmann.—"Yes."

Secretary Rea.—"I ask these questions because I have had great difficulty in handling exhibits showing the consecutive steps in any process, and reaching the whole class quickly. For instance, I have been using an iron and steel exhibit and I have to divide the exhibit into the forms of iron ore, its distribution, its transportation, and the smelting and manufacture of iron. The latter is again divided into several different processes in order to obtain half a dozen different groups of specimens and start one group in one row and the next group in the next row, in order to reach all the class, so I am very much interested in this part of the discussion."

Mr. Rathmann.—"That is the end we are trying to reach, but we have not yet attained it. We would like to have for each class of twenty pupils at least five or six different exhibits."

Secretary Rea.—"I would like to ask if you have any definite means of learning just what advantage the pupils receive from these exhibits. Do you get any returns upon their work?"

Mr. Rathmann.—"Oh, yes, the supervisors report to the superintendent and to the director of the museum. We have four assistant superintendents and three primary supervisors. They visit all the schools and observe the results of using illustrative material in connection with the lessons and they are unanimous in declaring that the interest in the branches I have named has increased greatly since this material has been in use."

Secretary Rea.—"I have tried and am trying now in experimental form, the plan of providing for the exhibit a blank form containing interrogations as to the exhibits. The answers to these form the basis for an essay on the exhibit."

Dr. Wilson.—"I understand, Mr. Rathmann, that you use about twenty stereoscopes?"

Mr. Rathmann.—"Twenty instruments and different numbers of pictures illustrating a subject. We do not send more than two or three copies of the same picture, in some cases only one, but we send twenty instruments so that each child has one."

Dr. Wilson.—"The whole class at the same time?"

Mr. Rathmann.—"Yes."

Dr. Wilson.—"And your classes number only twenty to twenty-five?"

Mr. Rathmann.—"Yes."

Dr. Wilson.—"Some of our eastward cities have classes that number forty."

Mr. Rathmann.—“We have in some rooms fifty pupils and more, but, as I remarked before, each room is divided into two classes, and only one class uses the material at a time.”

Miss Alicia M. Zierden (*Pennsylvania State Museum, Harrisburg*).—“I would like to ask you if you have your courses marked out so that the first grade will take cotton, the second grade will take something else and so on through the grades?”

Mr. Rathmann.—“The courses of nature study and geography prescribe that.”

Miss Zierden.—“Your eighth grade, then, does not have cotton?”

Mr. Rathmann.—“No, it does not.”

Mr. Charles R. Toothaker (*Philadelphia Museums*).—“I am extremely interested in this work because we are doing a great deal of it ourselves, and I would like to answer a question that was asked a few moments ago in regard to the durability of specimens. We find that such plants as cotton and rice need a great deal of protection, otherwise they will soon be destroyed, and those of you who have noticed the celluloid covers that we put over them in our exhibit will probably be interested in them.

“There is another thing which I think is of a little interest. I have talked to a great many school teachers in Philadelphia and asked them about their methods of teaching, and this past winter we had a little experience which we have not had before. When I was talking about cotton to a class of 150 I found that small specimens were of comparatively little value, and I now have more sympathy with some of the teachers who have asked me for things in bulk than I had before. I also found that in dealing with a big class, I could do very little good in passing around a bottle of cotton seed for instance, but that if I put the same kind of cotton seeds in a tray covered with celluloid, that this could be passed around much more quickly, and could be inspected and handled much more rapidly and with no danger, and I am inclined to prepare specimens in that way, specially for dealing with large classes. In small classes you can pass around these specimens, but you cannot do so in a larger class with satisfaction, unless they are protected in this way. This is my own experience as well as what the public school teachers of Philadelphia tell me.”

Mr. Rathmann.—“The teachers of St. Louis have the same idea, Mr. Toothaker.”

Mr. Ira B. Meyers (*School of Education Museum, University of Chicago*).—“I would like to ask if, where this material is used during the

class recitation, there is any provision made for the material going on exhibition for a day or two or even a week in that room, where it can be examined by the children during the recess hours or after school, or if it is confined solely to the recitation period?"

Mr. Rathmann.—"The material remains in the school for a whole week and very often the principal has it in his office on display the last day. The children are offered ample opportunity to see and study the specimens outside of the recitation hours, but, of course, the chief purpose of this material is to illustrate the every-day class work."

Mr. Meyers.—"The reason I raised the question was that I have found from a limited experience of my own that while the children got a great deal out of the material in the class recitation, it was so fragmentary in its nature that it was unsatisfactory. It seems to me for that reason, that if the specimens could be arranged where the children could go in groups or individually and look it over at some other time, it would furnish them an opportunity to crystallize their information in a way that would not be possible in the class recitation."

Mr. Rathmann.—"I neglected to mention something which will answer your question: The teachers of the schools, two or three times a year, and sometimes oftener, take their classes to the large museum hall where the teachers' exhibits are gathered, and there the children get an opportunity to examine all these exhibits. During the three years that the Museum has been in existence, I think that more than half of all the classes in the schools have seen these exhibits."

Miss Anna Billings Gallup (The Children's Museum, Brooklyn Institute of Arts and Sciences).—"I am interested in another suggestion in Mr. Rathmann's paper, where he speaks of lending apparatus for illustrating physical science. I would like to know a little more about that, what the character of the apparatus is and to what extent and how it is used."

Mr. Rathmann.—"We have instruction in physics in the seventh and eighth grades of our schools, and for the illustration of this we have material, such as the lever, wheel and axle, inclined plane, magnet, dry batteries, sonometer, air pumps, force pumps, etc. In this instruction in the seventh and eighth grades we simply wish to make the children acquainted with some of the great laws of nature and to create in them a desire to make themselves acquainted with a great many of them. In order to reach this, we place before them this simple apparatus and the children perform their own experiments under the guidance of the teacher and, just as they do on the relief map in geography, they draw their own

conclusions and find their own truths. No lesson is given in physics unless it be illustrated by such material, because to talk to the children without it is simply a study of words, not of nature."

Miss Gallup.—"You send such material to them?"

Mr. Rathmann.—"Yes, just as we do the other material."

Miss Gallup.—"Leyden jars and so on?"

Mr. Rathmann.—"Yes, we have 3 sets of 83 different collections in our physical museum which go from school to school just as the other material does.

"I want to add to my few remarks, and in answer to the many questions that have been asked, that the material which we have is by no means sufficient yet to fulfill all the demands, nor to make the teaching with it as efficient as we wish to make it, but during the three years we have made a good beginning and we shall not rest. We shall keep this up until we have our museum so well filled and so well arranged that every teacher can get as much cotton and as much of the other things as she needs to make her lessons enjoyable, interesting and intelligible."

Dr. Wilson.—"I would like to say that in the very last word of Mr. Rathmann we have drawn out one of the most interesting items of information which he did not intend to give us at all, viz., the circulation of physical apparatus in schools. I was not aware that that was done in any school in the United States.

"I also want to mention something we are doing in Philadelphia which I believe might be done in every state where there is a museum. We have not stopped with what the museum could do alone, but we have gone to the State Legislature in Pennsylvania and asked and obtained an appropriation, of \$25,000 every two years, for the last six years, for the purpose of circulating collections. We have made these up very carefully and tried to get an epitome of representations which would illustrate the commerce and geography of the world. We have been circulating these for six years among the high schools of Pennsylvania at the expense of the state, and have already sent out over twelve hundred collections.

"The collections consist of different sorts of things to illustrate commerce. Our series representing cotton, for example, is made up of about a dozen 8 × 10 in. photographs, giving complete information as to the raising, picking, ginning, baling, and shipping, and full data as to cotton the world over is put on the backs of these pictures so that the teacher has it all in her hand. There are about fifty or sixty series, accompanied by a book very carefully compiled by Mr. Toothaker, and

as I say, we have sent them into two've hundred high schools in the state of Pennsylvania. This last year we did not send these collections out until each school had prepared cases for them. We had them sent to the schools through the state senators and representatives, because that was the only way in which we could get the money, and we had the schools apply in that way so as to show the senators and representatives of the state that they were interested in these things. We sent out a few at first and they liked them and clamored for others. That made it simple to get the appropriation, because the senators and representatives were giving something away which the teachers and the schools considered valuable. This past year Mr. Toothaker, who has this matter in charge, has written to several county superintendents and asked them to designate to us the teachers in a particular county in the mixed common country schools, who would be most interested and most likely to use small collections in their schools. The names came in and we picked out eight or ten teachers in these counties and wrote to them and asked them if they could come in at a certain time in order to inform us what selections would be most useful in their schools. We asked them to come in on a Saturday, and told them that we would pay their fare, and they came. We turned those teachers loose on a great mass of material, and gave them pads and pencils, and asked them to jot down what would be useful to them. They spent the day with us. We wouldn't take the material which they made up or might have made up right there, but told them to take it home and consider it, and told them also that for their benefit we would send them other lists of the different kinds of material we had. We said to them: 'We want you to sum it all up and simmer it down to such small collections as you can use and take care of in your schools, something that will not be a burden to you, but that you can use every day.' We are waiting for those reports to come in now and we expect to circulate the exhibits among the small mixed country schools of Pennsylvania. That is one of the lines of educational work we are carrying on in that state.

"Now, we are having lectures for the schools about three a day in our museum. We send out a circular stating that we will give 75 lectures on the geography of different countries, or on various commercial interests, for example, lumbering in the United States, compared with the lumbering interests in foreign countries, or the grain industry and what it means commercially to this country, compared with foreign countries. We send the circulars to the schools at the beginning of the year and ask them when they would like to bring their classes to the museum.

Three or four come every Saturday for that work. The lecture is given by one or two men who make it a special study and who are curators in our museum. After the lecture the pupils are taken into the geographical collection and spend from one to two hours there, divided up into groups and instructed by our people. This work has been going on for two or three years. Last year we had over ten thousand children coming in small groups from the schools.

"I wanted to bring this matter forward because I do not know whether any other state has taken up this question of attempting to get appropriations from the state legislatures, but it can be done, as is illustrated in our case. I believe that in any state where the museum sets about it earnestly and shows what might be done, an appropriation can be obtained for that sort of work."

Mr. Toothaker.—"Dr. Wilson spoke of these collections being circulated. I think it would be a little clearer to say that these collections are given to the schools, and become their property. They are put in glass cases and you will often find the children in front of the cases studying the contents."

Secretary Rea.—"I have considered that matter carefully and have personally come to the conclusion that there is a decided advantage in the element of excitement in receiving an express package, and, furthermore, that teachers in country schools often change every year. Under these circumstances I find there is great danger that this material will be put into the corner and become rather familiar through the glass door and not so familiar in actual use.

"I would like to ask Dr. Wilson or Mr. Toothaker if they ever had any doubts as to the desirability of making the collection permanent in the school?"

Dr. Wilson.—"In the first place, we do not give the collection off-hand. We send out blue prints and all that sort of thing and we do not give the collection until it is reported that the case is ready for it. The schools often have to do a good deal of work in the neighborhood and get up a good deal of excitement to get the money together to build the case, and in that way it is made quite an important matter and the teacher is glad to go ahead and use it."

Secretary Rea.—"How about the next teacher who inherits it?"

Dr. Wilson.—"We have not sent these collections out to schools where the teachers change in that way. They have gone to the high schools. We are trying the experiment now of sending them out to the little country schools where the teachers often change every year, and

we have that point to consider. We have already sent out 25 or 30 of these small collections. To these schools, since we are not restricted in regard to the money that is given us by the state, we are going to send out practically the whole exhibit. We have our own woodworking machinery and our own carpenters, six or eight of them who are employed the year round to install our own material, and we are going to make these cases ourselves, using the state money for that purpose, and put them in these small schools. We are trying to think of everything we can, and what trouble we are going to have about the collection disappearing I do not know, but we are trying to get from the superintendents and teachers throughout the state all the assistance they can lend us. They are enthusiastic in the matter and we are trying to get them to create a sentiment in that way, and we are going to show partiality towards those teachers first."

Mr. Roy W. Miner (American Museum of Natural History, New York).—"We have been sending out to various schools hundreds of these small collections, some containing birds, some containing specimens of minerals, some of trees and some of the various industries. We have not attempted placing the collections permanently in the various schools, but we have found that those which we have sent out have come back to us with the specimens in a more or less dilapidated condition from constant use. In our opinion, the temporary placing of these specimens in each school is a better plan on that account, not to save the specimens, but merely that we may keep tab on them and replace them as they begin to give out.

"We leave them in each school two weeks. Our wagon goes around at the end of that time, calls for the specimens and transfers them to the next school on the line, and in that way we keep them circulating. Provision is made for the return of the specimens to the museum from time to time, where they are replaced as needed and go out again, something like the circulation of currency. We have, however, begun a scheme of placing more temporary collections in connection with the branch station of the public library where they will be better cared for and for a longer period of time, and where they can be utilized by teachers and pupils who may be in the vicinity of the library.

"I would like to ask Dr. Wilson what is done with regard to replacing specimens in the permanent cases."

Dr. Wilson.—"We have always held ourselves in readiness to replace material whenever it has worn out through constant use, as it must in time. This past year we inaugurated a system of sending out our men to every county in the state and attending the meetings of the teachers held

by the county superintendents, in order to become a little more familiar with the teachers and the whole system of the schools of the state and they have also visited and looked over the collections which we have already sent out and replaced or repaired the specimens wherever necessary. With these collections we have also, wherever possible, sent pictures, and wherever we could get a valuable picture we have printed duplicates ourselves and have sent those with the collections.

"I took home from the St. Louis International Exposition over ten tons of literature and a good deal of it was extremely valuable for the schools. I will mention in particular, the catalogue that was gotten up by the Chinese Government. It was a volume of 250 pages, which contained an immense amount of information. I took 1500 copies back with me to send out to the schools. I took home several tons of literature from the Philippine Islands, from New Zealand and from every country which had an illustrated catalogue containing information which I thought valuable. I sent these catalogues out to the schools, paying the express charges wherever our school collections have gone. We consider ourselves a sort of supply depot for anything that we think would be useful to the people of the state, wherever these collections have gone, and we hold ourselves ready to answer any sort of question that comes. We are getting just as close to them as we can and making all of them feel that we desire to aid them and are ready and willing at all times to render any assistance in our power."

The discussion of Mr. Rathmann's paper being concluded, on motion a recess was taken until 8 o'clock P.M.

SESSION OF TUESDAY, MAY 5

Evening

The Association reconvened at 8 P.M., President French in the chair.

ELECTION OF OFFICERS

President French.—"Pursuant to the report of the committee on program, we will now proceed with the next order of business which is the election by ballot of the officers for the ensuing year. Are there any suggestions?"

Mr. F. A. Lucas (Brooklyn Institute Museums).—"Mr. Chairman; I move you that the first ballot be an informal ballot for nominations."

The motion being seconded, was unanimously carried by a viva voce vote.

President French.—"We will proceed, gentlemen, to an informal ballot. I will ask Mr. Koehler and Mr. Baker to serve us in the capacity of tellers."

Upon request of Mr. Lucas, the Chair here ruled that the votes of institutions which are sustaining members may be cast by their chief executive officers or by properly accredited representatives, without invalidating the right of such representatives to vote again as active members.

The convention then proceeded to ballot for the nomination and election of officers for the ensuing term, the ballot resulting as follows:

President:

W. J. Holland, Director, Carnegie Institute, Department of the Museum, Pittsburgh, Pennsylvania.

Vice-president:

Frederick A. Lucas, Curator-in-Chief, Museums of Brooklyn Institute of Arts and Sciences, Brooklyn, New York.

Second Vice-president:

Frederick J. V. Skiff, Director, Field Museum of Natural History, Chicago, Illinois.

Secretary:

Paul M. Rea, Director, The Charleston Museum, Charleston, South Carolina.

Treasurer:

W. P. Wilson, Director, Philadelphia Museums, Philadelphia, Pennsylvania.

Councillors, 1908-1911:

William M. R. French, Director, The Art Institute of Chicago, Chicago, Illinois.

Henry L. Ward, Director, Public Museum of the City of Milwaukee, Milwaukee, Wisconsin.

At the conclusion of the applause which greeted the election of the respective officers, Mr. C. E. Akeley, Taxidermist-in-Chief, Field Museum of Natural History, read a paper, illustrated by lantern slides, on modern methods in taxidermy. Mr. Ward of the Milwaukee Public Museum then made the following remarks:

Mr. Ward.—"Mr. President and fellow members; I do not know how this address of Mr. Akeley's has appealed to you. To me it seems to be epoch marking. To one who has had to do with taxidermy and taxidermists as I have the secretiveness of these artists, the desire to keep hidden the processes by which they have achieved results unless perhaps they might give a half explanation to some friend or some museum director whom they felt would not come into competition with them has been a matter for regret. It has, however, been a common characteristic of the expert worker in many lines and is probably inherited from the old world craftsmen.

"In years past I have asked of preparators at the British Museum how certain things were done, how certain effects were produced, and for all the effect produced on the person questioned one might have thought him deaf and dumb. I have been positively refused admission to the workrooms in Paris of houses with whom the Ward Establishment had placed orders amounting to thousands of dollars from fear that I might learn some secret of their work. I have even had my own employees demur when I have asked them to show someone how something was done, saying that they did not wish to teach others what they knew. But here tonight we have listened to the man, of whom I can say without fear of accusation of flattery that he has done more for taxidermy in America than any other one person, give to us, friends, acquaintances and strangers, a full and detailed exposition of his method of mammalian taxidermy.

"I feel that tonight we have seen a breaking through of the old barriers of secretiveness that have not been a credit or an advantage to the individual taxidermist, to the museum that employed him, or to the art that he represented. It seems to me an important occasion and I am pleased to see a leader in the art take the lead in overturning this senseless system of secretiveness."

The following paper on the Lumière Autochrom process of color photography by Mr. Fred. D. Maisch, photographer in the Philadelphia Museums, was read by Dr. W. P. Wilson, who also demonstrated a series of very beautiful lantern slides made by this process:

COLOR PHOTOGRAPHY

The Lumière Autochrom process of color photography depends upon the theory that approximately all color sensations can be produced by the primary colors: red, green and blue.

The preparation of the plates is as follows: A glass plate is coated with a gum or varnish having the same refractory index as the glass. Before this varnish has thoroughly dried it is completely covered with starch grains, averaging $\frac{1}{16}$ millimeter in diameter. These have previously been dyed with three aniline colors, orange-red, green, and blue-violet; then thoroughly mixed and dusted on to the plate. This layer is then rolled and pressed into a mosaic by a machine invented for the purpose, which at the same time fills up the spaces between the circumferences of neighboring starch grains with carbon dust. After another varnishing the plate is coated with the sensitive emulsion.

The plate is placed in the holder with the film away from the lens, so that the rays from the lens must first pass through the glass and the layer of starch before acting on the sensitive film. By this method the rays reflected from an object are divided into the three constituents, red, green and blue.

The exposure is necessarily prolonged, as about 75 per cent of actinic light is intercepted by the starch layer.

The first developing is carried out in absolute darkness using a pyrogalllic acid and ammonia developer. This operation is accurately timed at $2\frac{1}{2}$ minutes. After a few seconds washing, the plate is immersed in a solution of potassium permanganate and sulphuric acid for 3 or 4 minutes in daylight. This solution has the faculty of dissolving the silver salt reduced in the first developer, leaving the white or unoxidized silver untouched. This process converts the negative into a positive.

The plate is then redeveloped in bright daylight, and afterwards intensified until the colors attain proper brilliancy.

In working with Autochrom plates one must endeavor to forget that reds are less actinic than blues, because the dyed starch grains tend to minimize the differences very greatly. In deciding on a necessary exposure one should take no account of any color shown in a subject, except yellow. Where yellow predominates the exposure should be materially lessened because it cannot be rendered as a pure color with the Autochrom plate. Blue, red and green each pass through but one set of starch grains and each of these colors represents just one-third of the available area of the plate; therefore, neither one of these colors should be favored in determining an exposure. Yellow on the other hand impresses the eye more vividly than any other color of the spectrum (leaving actinic value entirely out of the question), but passes through two sets of grains or two-thirds of the area. Therefore the exposure must be shortened within reasonable limits, trusting to intensification

in the pyro-silver bath to bring up the remaining colors in proper relation.

The ensuing discussion disclosed a very general interest in the possibilities of this process for illustration of museum lectures, especially in bird work. Slides prepared from Lumière plates are much less expensive and far better than hand-colored slides. The disadvantage arising from their greater density can be largely obviated, by the use of an adjustable rheostat.

On motion an adjournment was taken to meet at the Field Museum of Natural History at 10 o'clock A. M., on Wednesday.

SESSION OF WEDNESDAY, MAY 6

Morning

The convention reassembled at 10 o'clock A. M., at the Field Museum of Natural History, President French presiding.

President French.—"I now have the pleasure of introducing to you Mr. Harlow N. Higinbotham, president of the Field Museum of Natural History." (*Applause.*)

Mr. Harlow N. Higinbotham.—"Mr. President, Ladies and Gentlemen: Less than a score of years ago this spot was nothing more than a wilderness, a morass inhabited only by wild birds, lizards, snakes, and frogs, and we brought to this situation first a gentleman who sketched what might be done. We saw the sketch, we heard him explain it, and then if I quote from the Columbian code:

'We bade him rear our house of joy today;

But beauty opened wide the way and he passed on.'

"Then came another captain, Mr. Burnham, with a host of assistants and means to put into execution that beautiful dream or sketch which had been outlined by Mr. Root. In a day almost, as it were, this situation was transformed from the wilderness to a thing of beauty that as memory refers to it cannot but be a joy forever. In its beneficent influence on art, on industry, and on the religions and thoughts of the people, on the courtesies and amenities of life, everything as we refer to it and remember it was all that we could have wished. It was par-excellence. It was visited by millions of people from all around the world who had helped to create it, and who had contributed their share.

"Later there came a suggestion from a gentleman in this presence, made to another who is also present, that there might come as a fruitage of that larger occasion, an institution that should cover some of the elements that were there collected, and preserve them as a nucleus around which to build something of this character. Those two gentlemen carried that suggestion to a man who made it possible that this thing should be. He too has passed on and he leaves this as a monument of his foresight and as an encouragement to us and to our city.

"We feel proud of what we have done here and we think we have a right to take pride in it. We have something here that we hope to add to and make greater and better and more beautiful and more useful. We are glad to have others with us to see what we have done and to let us help them if we can, and to beg them help us as much as they can, so that we may have, not only here but in other institutions of like character in this country, the very best that can be created. Only the best ought to satisfy us, and the best that we can give is at your service always. If there is anything by way of reference or by exchange or any other manner by which we can be of service to the other institutions of like character in this country, we are at your service, and we shall only ask and expect and hope for a reciprocation. We are all of one people and one heart and one thought and we ought to work together for the good of the great mass of humanity that may be benefited by what we do.

"I wish to extend to the art museums especially, our most cordial greetings and congratulations that they are with us, and if they can make any suggestions that may be of value to us, they will be very thankfully received. Beyond this I will not detain you longer, but will allow you to go on with your regular order of business." (*Applause.*)

President French.—"The members of the Association here accept with the greatest pleasure the hospitality of the Field Museum today.

Mr. Skiff has a word to say to us I believe; Mr Skiff, the coming Second Vice-President.' (*Applause.*)

Mr. Skiff.—"Thanking you for that reference, Mr. President, and my colleagues for the distinguished and unexpected honor that has been bestowed upon me, I desire in behalf of the staff of the Field Museum of Natural History to assure you that we are especially pleased to have with us our fellow workers, the men who not only do things with their minds and their hands, but who feel the responsibility of institutions of this character, who realize the opportunity and its responsibility for making an impression upon humankind, who know that they are building something that is going onward and upward, and, as it rises higher

and higher in importance, is uplifting and educating, as well as inspiring, the communities of the present who shall influence those to follow, and elevating their hopes for the future of the splendid work that will continue to grow and grow as the wind starts in a bush and sweeps the ocean.

"In behalf of the working force of the Museum, in behalf of my colleagues and dear friends who work with me each day and have done so, most of them, ever since we started, we are rejoiced to see you here. We hope that while you are in the Museum you will take up practical things, that you will discuss with us what we are doing with the opportunities we have; how we are securing and how we are handling material; in what way we are making it first entertaining and then instructive to the public; in what way we are assembling different units and making them tell the whole great story. how we give a scientific fact a popular interest and what we are doing in purely scientific work. I think it is these results of the meetings that more than anything else give value to our conventions. While, of course, we have great delight in coming here and listening to all these academic ideas so carefully prepared, but too often concealed in written papers—what we want to do is to get down to studying methods of reaching the common and often uneducated mind, to which, after all, we should and must most appeal and to which our labor will be, if properly done, of the greatest value. The casual young stroller in the museum may be the future scientist or artist.

"As I say, we are glad to have you here to discuss with us the work that we have in hand; the responsibilities that have been entrusted to us. The entire Museum is at your disposal. We hope that the sessions will be so regulated today that you will have an opportunity to go behind the scenes and visit our herbarium, our study collections, our alcohol room, our machine shop, our printing offices, our photograph rooms, our libraries, and to see our taxidermy. Let us get down to first principles if we can, today, and rub up against each other and get new ideas, new hopes, and work along together.

"Now, if anything I have said gives you the slightest conception of the pleasure it affords the workers in this institution, from the janitors up, to see the men who are our collaborators throughout the United States, to have them here with us, to share with us the satisfaction we all feel in having gotten so far in our purpose and mission, I still fear this expression can give you but an inadequate idea of our sentiments. Everything in the Museum is yours. We have moved out a few dead ones today to make room for you in Egyptian Hall, but as the very living fill

these silent places, in highly vitalized form, so from the lesson this transposition suggests, we can but reflect that history and fiction draw truth and story from the things that were.

"I bid you all a most affectionate welcome." (*Applause.*)

President French.—"Continuing the regular order of business, we will now listen to the reading of a paper by Mr. Edward K. Putnam of the Academy of Sciences of Davenport, Iowa."

THE EDUCATIONAL WORK OF THE DAVENPORT MUSEUM

As a local museum in a small city, the experiences, successes and failures of the Davenport Academy of Sciences during the forty years of its life may be of interest and help to other museums similarly located.¹ The Davenport Academy of Natural Sciences, as it was then called, was founded in 1867 in a western town of less than 20,000 inhabitants by four men, each of them interested in the advancement of science. For many years it continued in a small way, holding regular meetings at which papers were read and discussed. During this time the members brought together and built up the beginnings of a museum. As the years went on the scientific work and interest in the society expanded and in time it began the publication of its proceedings and also the erection of a museum building to house its constantly growing collections. For many years all the work for the Academy was done voluntarily by its interested members, but for the last fifteen years a curator has been employed on a small salary. Along with its other lines of activity, the Davenport Academy of Sciences has, from the very first, been influential in educational matters and in making its museum contribute toward education.

In these days when the educational value of museums is being recognized, it is interesting to turn back to the early records of the Academy and see how this educational value was uppermost in the ideas of the founders and in the activities of those who have carried on the work. In an address delivered by Dr. C. C. Parry, the eminent botanist, then president of the Academy of Sciences, March 12, 1869, less than two years after the founding of the Academy, he says that the two objects of such an institution are, first, to awaken a general interest in the observation

¹ For a suggestive paper on "The Function of the Provincial Museum," by Prof. C. C. Nutting, see *Proceedings, Davenport Academy of Sciences* X, 167-176.

and study of natural objects and, second, to stimulate research. This second object, he says, concerns the active scientific membership. The first concerns the relationship between such an institution and the community. Dr. Parry believed that much would be done toward arousing interest by having museums whose contents were accessible and attractive. These collections would convince the public that such objects are worthy of attention. He further expresses the hope that by means of such a museum and the interest aroused in it, direct results would come in the addition of natural science to the course of study in the schools.

As I have had frequent occasion to remark, the educational claims of Natural Science are but very dimly appreciated, even in this utilitarian age and country, whose astonishing progress is largely due to the applied results of scientific investigation. . . Let the claims of Natural Science be once fairly admitted, and we shall have scores of teachers crowding within these halls, consulting our museums, and libraries, taking an active part in our exercises. . . No small honor will in after time attach to those who uphold the cause of science, as an educational power, during the period in which it is little esteemed, or regarded as visionary and Utopian in its aims and purposes.¹

On another occasion² he remarks that such institutions as the Academy have a legitimate educational sphere, unappreciated though it may be, but none the less real. He is encouraged to hope that persistent efforts, aided and directed by experience, will be everywhere eventually successful, and an academy of sciences be recognized as "an essential part in the educational appliances of every intelligent community." These remarks by Dr. Parry are especially significant because he was the most eminent scientist among the early members of the Academy and the most influential in shaping and directing the growth of the young institution.

That Dr. Parry's plan for the development of education through the museum and the Academy bore fruit is shown by the later reports of the institution. Mr. W. H. Pratt, one of the founders of the Academy and one who gave much of his life toward its development, labored hard toward securing direct results by the introduction of scientific teaching in the public schools. A teacher in the public schools himself, he early appreciated the educational value of science teaching in developing the powers of observation. Officially and unofficially, the Academy, or members of the Academy, unceasingly sought to have science made a

¹ Proceedings, Davenport Academy of Sciences, I: 19-23.

² President's Address, Jan. 7, 1874. Proceedings, II, 356.

part of the course of study in the public schools and gradually these efforts resulted in success. Ten years after the foundation of the Academy, Mr. Pratt, in reviewing what had been accomplished, refers to the fact that natural history, physics, botany, zoölogy and physiology were now taught in the schools. Mr. Pratt went further still and at least as early as 1877 sought to have more vital connection between the museum and the public schools. When the Academy's own building was opened, he sought to make the museum directly educational by bringing the school children there, making the museum, as Rev. S. S. Hunting, then president, called it, "the ally of the public schools." At this time, in order to make the museum useful, Dr. Parry voluntarily conducted classes in botany and others did the same in other departments. When the Agassiz Association was organized the two chapters formed in Davenport held their meetings at the Academy. Mr. Pratt next arranged to have classes from the public schools, both of the city and county, come more or less regularly to the Academy and to have himself or other members of the Academy explain some class of specimens to the children. This was at first done informally, but in 1889 the plan was taken up by the trustees of the Academy and a formal arrangement was made with the superintendent and principals of the schools by which classes from the eighth and ninth grades came regularly to the museum, Mr. Pratt, the curator, giving up a portion of every day to explaining the collections to the children and giving them lectures illustrated with specimens from the museum. During the year he gave over one hundred of these lessons, the average number of pupils in attendance being thirty-three. In addition he gave lessons to the school teachers, to classes from the schools of Moline and Rock Island, and to classes from the Orphans' Home, Kemper Hall and the Lend-A-Hand Club. J. B. Young, superintendent of the public schools, in his report of July 1889, made favorable mention of these lessons as a part of the public school instruction. Mr. Pratt was pleased with the result of the experiment, saying of it in a report to the trustees of the Academy, dated June 13, 1890:

"This plan of coöperation with the public schools, which is original with ourselves, met with the most cordial approbation of scientific persons and educators elsewhere, and has been favorably noticed in various scientific publications.

"Though it was an experiment previously untried, and has been carried out but to a limited extent as yet, it is already sufficient to fully demonstrate its feasibility, usefulness and popularity and to show unmistakably that it could be advantageously extended to one or two

lower grades, and that all might attend somewhat oftener—each class coming once in each month if no more.

"Having thus introduced this method and given it, as I believe, a fair and reasonably successful trial, my confidence in its usefulness and importance, both to the schools receiving instruction and to the institution affording it, is greater than ever; and I would here express the hope that it may be continued under still more favorable conditions, and become a regular system and part of the public school course of instruction, and may exert a strong influence in favor of an extension of natural science instruction in the school rooms."¹

Unfortunately, circumstances the following year necessitated Mr. Pratt's removal from Davenport just at the time he was developing his favorite theory of making the Academy an efficient auxiliary to the public schools by using the museum for teaching from objects instead of from books.

Mr. Pratt was followed as curator by Prof. W. H. Barris, the geologist, for long years a member of the faculty of Griswold College in Davenport. While Dr. Barris did not keep up the plan of having classes come to the Academy regularly, he encouraged informal visits from classes and groups of children from the schools of Davenport and of neighboring cities, thereby testing what he called the "teaching qualities" of the museum. Dr. Barris died in 1901 and in the following year, while the curatorship was still vacant, Miss S. G. F. Sheldon voluntarily took up the instruction of school children at the museum.

Those interested in the Academy had all along felt strongly the importance of the educational work and the coöperation between the museum and the public schools. There is hardly a president's address from the days of Dr. Parry down that does not dwell upon this. Mrs. M. L. D. Putnam made a special plea for the educational value of the museum in her inaugural address as president in 1900. In selecting a new curator an effort was made to find one who would be qualified to carry on this part of the Academy activity. In April, 1902, Mr. J. H. Paarmann was engaged as curator and with the beginning of the school year of 1902, took up this school work and made it a vital feature of the Academy's usefulness. During the year 1903, all the public schools of the city went in classes to the Academy and in addition a regular class of teachers was organized for the study of natural history and in this way an intelligent interest in natural history was aroused among those most directly concerned with the development of the child mind. For two years Mr.

¹ Proceedings VI: 291.

Paarmann continued giving these talks at the museum to classes from the public schools and also giving lessons to teachers.

The value of this educational work was so appreciated and the results so obvious that in the year 1904 an arrangement was made between the school board of the city of Davenport and the trustees of the Academy of Sciences, by which the school board voted to employ the curator of the Academy of Sciences for one-half of his time to teach science in the public schools of the city. This arrangement has continued ever since and is still in force, the curator of the Academy devoting his forenoons to the public schools and his afternoons to the Academy.¹ The plan has the advantage of bringing the museum and the schools into the closest relationship, but would become more difficult in proportion to the size of the city. In Davenport, with a population of, say, 45,000, Mr. Paarmann is still able to visit all the fourteen graded schools personally, making the rounds once every three weeks. He gives from four to eight, usually five, talks at each school during a forenoon, and as two rooms ordinarily unite he reaches from 250 to 400 students a day. He takes with him specimens from the Academy museum to illustrate his talks. This arrangement has seemed more economical and effective than having all the talks at the museum itself. At certain times every year, however, classes from the upper grades do come to the museum where lectures are given, illustrated with objects from the museum, and in the spring time Mr. Paarmann takes classes of the older children to the Government Island, an almost ideal nature preserve, for the purpose of studying birds and their habits. The curator also endeavors, by special classes, by lectures at institutes, and in other ways, to train the teachers so that they can be of material help. The success of this method of coöperation between the Academy and the school board is shown not so much by the figures and statistics of classes, as by the increased interest of the individual children and the effect upon their educational development. All through the city the children almost count the days until the man from the Academy, or the "bird man" as he is frequently called, comes with his specimens to talk to them, and on Saturdays and Sundays large numbers of the children come to the Academy to see the more complete collections there, often bringing with them their parents.

Another result of this educational work of the museum has been the reaction on the museum, a reaction which benefits the older members

¹For Mr. Paarmann's reports see Proceedings IX: 295-6, 308-9; X: 180, 188-9, 197-8, and also the report for 1907 to be printed in Vol. XI.

of the community as well as the children. It becomes evident that a local museum, used as the Davenport museum is, must almost necessarily be so arranged as to attract the eye and leave some intelligent impression. Moreover, the museum must be added to, so that those objects which are useful for the public school work will not be lacking. Thus during this year much has been done toward building up a commercial and industrial department which has proved to be of very great interest not only to the school children but to the general public.

Such in brief is an outline of the educational work of the Davenport Academy of Sciences. What has been accomplished during the forty years of the Academy's existence, shows that still more may be done. The results even now have proved the soundness of Dr. Parry's idea of forty years ago, that an institution like the Davenport Academy of Sciences could through its museum and in other ways be a positive factor in the educational system of the city. The results have further proved the practicability of Mr. Pratt's scheme for active coöperation between the museum and the public schools. With the new fireproof building which the museum needs and hopes for, and with the substantial endowment which is now assured for the future, the Academy of Sciences confidently looks forward to still greater usefulness in the intellectual uplifting of the community.

President French.—"Are there any questions or suggestions in regard to the paper?"

Mr. E. E. Blackman (State Historical Society, Lincoln, Neb.).—"Mr. President; I want to bring before this meeting something of the result of those talks given by Mr. Pratt years ago in the Academy of Sciences of Davenport. As a boy, ten years old, I lived in that community, and the delight of my life was to listen to the talks delivered by that grand old man. From the little start which I received there, together with the interest which was aroused by Mr. Hall, a gentleman who collected largely for the Academy, my interest has always continued in that line of science, and especially in art galleries. I attribute my later work to the seed sown at these lectures by Mr. Pratt.

"I want to say that the far-reaching value of such things cannot be estimated in dollars and cents. You cannot estimate the satisfaction which I have received from the power to study my surroundings during my many years of school life. If I succeed in building up a museum in the state of Nebraska which shall be a monument in that state, the credit

must be given to that grand old man, Mr. Pratt, who gave those talks in the Academy of Sciences."

President French.—"Mr. Blackman's testimonial is certainly a very direct one to the value of such work."

Mr. Putnam.—"Of course, in a small city we have an advantage over a larger city in this work, because we can come in much closer contact with the children than is possible in a great city. I appreciate also what Mr. Blackman says about Dr. Pratt, and he is not the only one who has been influenced by those talks in the early days."

Mr. Frank C. Baker (The Chicago Academy of Sciences).—"Possibly very few of us appreciate the value of an academy of science in stimulating the minds of young people to the opportunities of studying nature, and the remarks of the last gentleman call to my mind some instances in connection with the Chicago Academy of Sciences.

"I can think of four young men at the present moment, and I believe there are more, who, during the last fifteen years since the academy building has been in Lincoln Park, have been started out in nature study, and two of those are now in the State University taking courses along that line, as a direct result of the encouragement given at the Academy of Sciences. That shows the advantage of having such an institution to stimulate the interest of young people. One of these young men was interested in the study of molluscs and I had the pleasure of starting him in that work. I think he may possibly make a remarkable man in the course of time.

"Then there are two questions which came into my mind that I would like to ask Mr. Putnam: Am I to understand that you have loan collections?"

Mr. Putnam.—"No, we have no loan collections. We are encouraging some schools to build up collections themselves, because it is interesting for them and they take pride in having their own little collections."

Mr. Baker.—"There is another question I wish to ask, and that is, when the classes visit the school, do they have any preparation from the teacher beforehand or do they come down on you at any time without any previous arrangement?"

Mr. Putnam.—"That is all arranged beforehand. Mrs. Palmer is engaged now in visiting the schools. A well organized program is carried out and the classes coming to the Academy are arranged for beforehand. We have also a great many classes coming from the country schools and across the river outside the city."

Mr. Baker.—"The reason I asked that question is that if a teacher

comes with a class without preparation, the class wanders all over the place. Possibly Mr. Skiff has noticed the same thing in the museum here. It looks at anything it wishes to, and there are no results from the visit. If the teacher comes after a definite preparation, and has, as in a case I have in mind at the Academy, slips of paper made out and given to each pupil and the pupil is required to do a certain amount of work during the visit, then something is accomplished. Where teacher and class come possibly twenty-five or thirty miles and they are turned loose to wander about the museum, no good results are accomplished."

Miss Anna B. Gallup (Children's Museum, Brooklyn).—"I do not think there is no benefit to be derived in turning the class loose in the museum without preparation. At least, in our museum in Brooklyn a great many teachers have come without preparation and turned their classes loose, and that first visit has proved a stimulus to other visits, and to visits which were prepared for, perhaps. If little children who have never come to a museum before are allowed to wander around and pick out what they like, the chances are they will become interested and want to come to the museum again, and very often in Brooklyn they will work upon the teachers until they force them to bring the classes with them."

Mr. Putnam.—"I am trying to make the work at Davenport just as practical as possible. Last fall we were troubled very much with the white moth which was destroying the foliage of our trees. Thinking it might be well to bring that matter up before the children, I got a lot of material together on the subject for presentation at the various schools, and showed the children how to collect the eggs of the white moth. Then I had the teachers report as to the number of eggs the children brought into the schools, and found that on an average about 160,000 eggs were collected by every room in the schools in Davenport. That means a decrease in caterpillars in Davenport this year.

"Then we were troubled by the birch bark borers which were destroying our white birch trees. We found that the woodpeckers were the only enemy of the birch bark borers and that gave an opportunity of taking up the study of the woodpecker.

"An opportunity was offered for the study of landscape gardening and I got a list of books from the agricultural department which I gave to the children, telling them they could obtain those books free. I think the Department of Agriculture has been sending some 20,000 books to our children in Davenport, according to the reports of the letter carriers, and I believe that the children have been getting some good therefrom.

"Some peculiar things come up in this work. I was giving a lecture on birds in the first and second grades, and the teacher had been talking about birds and had pictures of them hung all around the room. I said to her, 'I am going to find out now if the children can recognize the birds that are presented in these pictures.' I held up a male cow bird, and I said, 'Do you know what that is?' Oh, yes, they knew what it was and held up their hands and shouted out 'Wild turkey.' I asked, 'How do you know that is a wild turkey?' and they pointed out a picture of a wild turkey, and I was surprised myself to see the resemblance, eliminating the size. That is the objection to pictures; they do not give an idea of correct size."

Mr. Ira B. Meyers (School of Education, Chicago University).—"In connection with the discussion last night of what we might call elementary educational work, it seems to me that there are two principles which are vital in the museum movement. They came out some years ago in some work I was trying to do with children whom I had brought to the museum to look over the splendid exhibits. While they did enjoy the exhibits, they did not seem to find the intellectual meaning that they should. We went back and started the children collecting material themselves, and writing up some little histories of frogs and things of that kind. They spent a good deal of time on it, and we soon found in that way that they gained some appreciation of the life of these things, and of the work it requires to get them in shape so that they really look natural when they are put on exhibition. After we had been at that work probably a month we took the children back to the museum and found a marked difference in their appreciation of the exhibits.

"It seems to me, therefore, that it is a good plan to recognize that the children must have some experience along these lines in order to appreciate the work that is being done in the museums. Let the children work out the process in our steel works from the raw ore to the finished product, for example, and then bring them to the institution and they begin to have an intellectual appreciation that is something more than a mere sense of curiosity. Of course curiosity must be the thing which first leads children so examine these things, but unless that curiosity is transformed into intellectual appreciation, we shall not succeed in this work, and I am so vitally interested in it that I wish to see more done in our public schools until we have the movement on a footing that will stand against any opposition that may arise from any source."

Mr. James E. Talmage (Deseret Museum, Salt Lake City, Utah).—"The paper to which we last listened is particularly interesting to me

from the fact that it emphasizes the part of museum work that has to do with the many rather than with the few. I admit the great importance of the specialist's work in museum advancement, yet I regard the museum as an institution peculiarly adapted to the education of the masses. It has been said that the teacher is he who stands between the specialist and the people, he who takes from the master's hand the bread of truth and distributes it to the waiting multitude. In a general way this position of the teacher among men is occupied by the museum among institutions.

"It is within the proper function of museums to foster and to promote in every way possible the work of original research, investigation, exploration and discovery in the realm of the unknown. But the museum that has done all this has but in part discharged its duty. The results achieved by investigator and explorer are to be systematized, collated and brought within the reach of the people at large.

"The disfavor manifested by some for what has been somewhat derisively termed popular education is not always well founded. If by popular education we mean that which is superficial and injuriously incomplete there may be good reason to decry it; but if popular education includes bringing to the masses such truths as they can profit by, then this phase of popular education is to be commended.

"A smattering of knowledge may lead to ill if it be regarded as more than it is; but a little good is better than no good at all. The paper by Mr. Putnam has shown us what a comparatively small museum can do in connection with the public schools—in instructing the children and through them the parents.

"The relation of the museum to the public schools received attention at our organization meeting in New York; the subject was not forgotten at the Pittsburg meeting a year ago; I am glad that it has been brought before the Association at this gathering. The museum is a close associate of the common schools, which deal with the masses, as also of the universities, which deal with the few."

President French.—"The next order of business is a discussion of the adaptation of buildings to the work of museums, which will be opened by Mr. Skiff and illustrated by plans of the proposed new Field Museum of Natural History, which will be explained by Mr. Theodore Lescher. I have pleasure in again presenting Mr. Skiff. (*Applause.*)



PROPOSED NEW FIELD MUSEUM OF NATURAL HISTORY, CHICAGO, ILLINOIS

DEMONSTRATION OF PLANS OF THE NEW FIELD
MUSEUM OF NATURAL HISTORY

Mr. Skiff.—"Mr. Field, the patron of this institution at his death, January 16, two years ago, left to this museum eight millions of dollars, four millions for endowment and maintenance and four millions for a new building, stating in the will that a free site must be obtained by the Museum for its building within six years of his death if this four million dollars was to be reserved for that purpose. This gave the city six years to provide a site. In this provision Mr. Field announced his belief that the present building would serve the purpose of the Museum for no longer a period than six years, and in this he was more than correct.

"The South Park Commissioners, under an act of the Legislature, gave the Museum a location on the Lake Front at the end of Congress Street extended,—Congress Street being the thoroughfare between the two Auditorium Hotels,—in a park called Grant Park, made by filling in the lake to the extent of about two hundred acres. The location of the building is to be about 300 feet east of the Illinois Central right-of-way and to extend north and south so as ultimately to cover two blocks, with Congress Street opposite the center. An injunction has been obtained by a citizen of Chicago, who has taken advantage of some clause in an early dedication of the land, and who objects to having any buildings of any character whatsoever erected on the Lake Front, and this question is now in the courts. The indications are that it will be decided as the people of Chicago desire it to be decided, almost unanimously, in favor of the Museum.

"In the meantime the architects, D. H. Burnham & Company, have designed the new building. The plans have been approved by the staff of the Museum, by the trustees of the Museum, and by the Board of South Park Commissioners. In fact for more than a year before Mr. Field's death, and almost continuously since then, everybody interested has been at work with the architects in perfecting the plans of the building in every detail.

"At my request, approved by President French, and in view of the special features of the program suggested by Mr. Rea, Mr. Lescher is here this morning as the representative of the architects with some of the plans. The larger water color drawings that he had hoped to exhibit, and which would have given you a more comprehensive idea of the entire scheme, he was unable to bring on account of the rainy weather we have been having.

"With these words of explanation, and with an expression of gratitude to Messrs. D. H. Burnham & Company for taking all this trouble I have the pleasure of introducing Mr. Lescher who has been in charge of the design of the building." (*Applause.*)

Mr. Theodore Lescher.—"In thanking the architects for their trouble Mr. Skiff forgot for a moment what an extreme pleasure it is for them to explain their work to those who have expressed an interest in it. I do not know of a better place to begin this pleasant task than with the general elevation and by calling your attention to the fact that it resembles in a certain degree the building we are now in.

"It was evident, after the Museum had become a fixture in Chicago, and the people had become much attached to the present building in spite of the fact that it does not suit the requirements of the Museum, that it would be very fitting to take this building as it stands as the starting point for the exterior of the new one. It has been held by art critics since the World's Fair, that this building is perhaps as perfect a one as has been designed since the old Greek times. Augustus St. Gaudens, who was an exquisite critic of proportion and detail, not only of his own work in sculpture, but also of architecture, unqualifiedly said that it was the most beautiful building since the time of the Parthenon. So there were strong reasons for using it as the starting point and bending our efforts to adapt it to museum needs.

"The elevation before us takes in only the central portion of the new building—everything in the way of wings has been omitted, but it is hoped at some future time to add them, and in expending the appropriation Mr. Higinbotham has wisely made a provision for reserving a certain part of the interest, and perhaps of the principal, which can be used in building the wings at a later date.

"The main entrance pavilion of the building is directly opposite Congress Street, the street which has the Auditorium Hotel on one side and the Auditorium Annex on the other. The small perspective gives the exact location on the prolongation of Congress Street toward the east. You will notice a great many things on this drawing which do not exist in Chicago at present, as this is one of the plans that the Commercial Club Committee, under Mr. Burnham's directions, is working out for a more beautiful Chicago. They are looking into the future to a considerable extent, but although certain parts do not exist, the particular portion called Grant Park does exist, and the drawing shows you Michigan Avenue, 12th Street, the river, the Auditorium and opposite it the mass of the Museum. The ground which surrounds it,

and which will be treated as a setting for the Museum, has already been filled in.

"Mr. Skiff suggested that I bring to the meeting a number of large drawings which are being made for the Commercial Club plan, but, as he has explained, we were unable to do so on account of the rainy weather. Some of these drawings are in the neighborhood of twenty feet in length, especially an immense perspective showing the treatment of the Lake Front from the river to where we are now—a distance of from six to eight miles. There was no wagon long enough to enclose them and there seemed to be no way of protecting them against the wind and the rain, and as they represent an expenditure of several thousand dollars it was deemed wiser to keep them under cover.

"Having told you the inspiration for the exterior of the building, the next step is to get into the interior. The plans of the museums of all the countries in the world were studied very carefully. All the data that could be found concerning these museums and the method of handling the material which they were designed to house, was studied in detail, and the rather startling conclusion developed that there was nowhere a perfect museum in existence at the present time. There were parts of two or three which came pretty close to perfection and one of them happens to be here in Chicago,—The Academy of Sciences, planned on lines which are very good indeed, although the proportions of the building are much smaller than should be recommended. The American Museum of New York has certain halls which are very good indeed, and there are things about the new Brooklyn Museum which come near the point of perfection for certain purposes, so we have considered ourselves fortunate in having all this experience so near at hand, and have tried to profit by it to the utmost extent.

"The main point which was always kept in mind in planning the museum is the fact that a museum is a treasure house of a great many cases and a great many boxes. These cases as a rule are of standard sizes. In the present Field Museum they are twelve feet long and two, four, six and eight feet wide. In is the concensus of opinion, I think, of the present day critics of museum buildings that side lighting for all cases is the best to adopt, using the skylighted hall for very large objects only, or where it is absolutely necessary to use top light. Keeping this in mind the spacing of the front columns and of the windows was laid out with reference to the cases that they were going to accommodate, and you will notice on the different floor plans that the piers are made wide enough in every instance to receive the end of a six foot museum

case. From each one of the piers the cases will extend into the hall, forming alcoves, and this principle is carried out in all parts of the building.

"From the entrance we go into a central distributing hall which is carried up through the three stories of the building. On each side of it are great arches opening directly into the Exhibition Halls, so that there is very little chance of losing one's way. By means of signs it will be very easy to direct the people from this central hall into the different divisions of the Museum without loss of time. Once through these arches the visitor is in the long Exhibition Halls, of which there are four in the width of the building. These halls are about forty-two feet in width, and irrespective of the subdivisions or partitions, they are in the neighborhood of two hundred feet long. They are all alike and are connected at the ends by transverse halls of similar width, similarly treated.

"Another vital point which we have considered in planning these halls, and in which we were helped by the lay of the land, is the fact that the majority of long halls in the Museum can lie with the long axis North and South; in this latitude this arrangement gives very much the best light. The spaces between the long halls were originally open courts in a preliminary plan which was made for the Museum, but it was found that this space could be utilized by running the main floor of the building from west wall to east wall uninterruptedly. At the level of the second floor an improved type of skylight was planned, giving the maximum of light and consisting of a single thickness of glass, which may be easily kept clean. This is as perfect a type of skylight as has been developed and will be used in the three courts on each side of the central hall of the building. In looking at the main floor of the building you may consider it as one immense floor space from end to end and from side to side, simply broken up into halls by the piers which receive the ends of the cases. The different exhibits will be separated by screens just high enough to cut off the view from one exhibit into the next, but without cutting off the light or enclosing these exhibits in small stuffy rooms as is often done.

"Near the entrance vestibule on the main floor we have located the director's suite of offices, consisting of the director's office, ante-room and private office; the working office of the recorder and the general office are nearby; and on the floor just below and on a level with the ground outside, are further offices for carrying on administrative work of the Museum. On the opposite side of the entrance is a series of

rooms given up to the Trustees and forming a pendant to the director's suite.

"In order to get the people to and from the different floors of the Museum, the stairs have been located very conveniently at the entrances to the long halls. In fact not only have the stairs been kept at these points, but all of the wire and pipe shafts, the cut-out boxes, fire mains, and the rest of those little disagreeable things which are so necessary, have been kept in these particular places and hidden from view. As you go through the entrances you see the stairs, which is the important thing, and you pass into the next hall without feeling that it is disfigured by these innumerable practical things which form the nerves, the alimentary canal and that sort of thing in the building.

"Another point which should have been mentioned is, that as soon as the visitor reaches the main vestibule he sees a very important stairway leading to the second floor so that it is impressed upon him then and there that the Museum occupies at least two floors and that the public is expected to visit them. This idea is further emphasized by a great stairway at the far end of the central hall which he sees immediately on entering. On the main floor is found also the Library Reading Room occupying a place near the east entrance, with its Stack Room on the floor below it, and connected by a dumb waiter service. A small lecture hall seating about two hundred people is also located near this entrance.

"The second floor plan is exactly the same in general lines as the one below it, with the exception that the courts which I have called your attention to as being skylighted, are open to the sky, the glass surface of the skylight being below the sill of the windows in this story. The stairs, pipe shafts, etc., are kept in the same relative places, and the maximum light is obtained at the short ends of the courts by making a very small connecting passage with the neighboring halls. At the ends of the courts we have five large windows so that there is a minimum of lost light, due to one portion of the building abutting against another.

"On this second floor the central hall is an open space surrounded by a gallery. As it is the great show hall and the great distributing room of the building it is necessary to give it sufficient architectural importance to express its function and the aim of the building. The gallery provides the circulation around the ends of this great hall from one side of the building to the other.

"The division into departments of the Museum is as follows:

"The Departments of Zoölogy and Anthropology are on the main floor, each one occupying half of the building, and the central hall is

given up to the great objects of those departments. On the second floor at least two of the long halls will be given up to Zoölogy and Anthropology and the rest of the second floor will be divided equally between the departments of Botany and Geology.

"The third floor is the working floor of the Museum. It is here that the curators will have their offices, and that almost the entire working force of the scientific staff of the Museum will be installed. The divisions as they are laid out on this plan represent the divisions given to the architects by the curators themselves. The curators' offices will be in the four corners of the central division of the building, easily accessible from the central hall. Each curator has, as his working department, one-quarter of the third floor of the building, just above his exhibition halls. It is the intention to make these quarters as comfortable as possible. They have as good light as the public exhibition halls of the building, and the offices will be comparable to those in the best office buildings that are now being erected.

"The point which Mr. Skiff has mentioned and which would have been covered by the large scale drawings we are not able to show you, is the relation of this building and its setting to the boulevard scheme of Chicago. Grant Park, which is now entirely filled in and partly planted with shrubs and trees, is really the heart of the great boulevard and park system of Chicago. This system is being developed, not only in the present built-up section of the city, but is being carried out many miles into the country. The radii of roads which are being considered in connection with it as great outer girdles, extend in the shape of a fan about forty-five miles from the heart of the city, with the Museum as a center. It was decided that the building is important enough to be placed in this unequaled location, and the point which Mr. Skiff wished to insist upon is that public buildings of this class should be intimately connected with the things which make a City Beautiful, and should not be hidden away in corners and forgotten.

"This figure shows the connection between the Museum in Grant Park and the great island park which it is proposed to build at some future time along the whole lake front of the South side as far as Jackson Park. The lake front at present is given up to railroads. It is proposed to build an island about five hundred feet wide, leaving a waterway also about five hundred feet wide between it and the present shore line. The figure also shows in a feeble way, the great plaza in front of the Museum and the splendid setting that the building will have.

In a general way we can say that the building is 350 by 700 feet, out-

side dimensions. The floor area given up to museum purposes will be about 750,000 square feet; this includes the working space and the public space. As you have seen by the plans, a little more space is given to the public than to the working force. In comparing this museum with others in this country we find the New York Museum to be the largest; it has one million square feet—perhaps more. The museums in Washington at the present time have something under this figure. The new museum in Brooklyn, when completed, will have 600,000 square feet, so that the Field Museum will take third place, unless Mr. Higinbotham's interest develops to such an extent that the wings may be added."

Mr. Higinbotham.—"Tell them about the wings and how they will be added, in reference to the fore-courts, etc."

Mr. Lescher.—"You will notice that there is an open plaza in front of the building, made by extending Michigan Avenue toward the east and building over the Illinois Central tracks directly up to the entrance of the building, so that there will be no separation as is the case at present.

"This will create a great Plaza which we can only compare to the Place de la Concorde in Paris. Later, when the additions or wings are built, they will be connected near the front of the building and will extend toward Michigan Avenue on each side. There will then be a fore-court at the west of the Museum framed in on three sides; it can be very beautifully treated with a mosaic pavement of different colors and by means of balustrades and other park architectural motifs, and in connection with the great plaza can be made one of the most monumental compositions in the country, or perhaps in the world. At least, it is the intention of everyone interested to make it so."

Mr. Higinbotham.—"Those annexes are to extend east along the end of the main building?"

Mr. Lescher.—"There have been several schemes proposed for adding the wings; I have simply mentioned one of them. It is possible to extend back also, as Mr. Higinbotham suggests, depending on the amount of money, I should say, that will be at the disposal of those who are in charge of the work."

Mr. Higinbotham.—"I think, depending upon the amount of space that will be required." (*Applause.*)

Mr. Lescher.—"The two are closely connected, but there are great possibilities in any case, and in planning the building, the Museum has very wisely left for itself a greater area than the main building will cover so that it can be extended in any direction."

Mr. Higinbotham.—"On its own grounds?"

Mr. Lescher.—"On its own grounds."

Mr. Skiff.—"Did you explain the arrangement of the columns on the front so as to avoid darkening the rooms?"

Mr. Lescher.—"In a previous scheme for the building we had a colonnade along the front. Architects have been very severely criticized by museum people for paying too much attention to architecture and not enough to museum conditions. You read in every criticism of a museum that the exhibits suffer from want of light and from a number of other causes because the architect wanted to do architecture instead of building a museum. I feel it my duty to tell you, whether you believe it or not, that this has largely ceased to be true. Within the last half century it has become safe to entrust almost any well known architect with a building of this character, and he will plan it in such a way that the aim of the building is his first consideration, and the beauty of the architecture second.

"We have worked along those lines in this building; at the same time it was everyone's idea that the central placing of the building demanded that it should be given a monumental character, and for that reason more expenditure is represented in the exterior elevation of the building than otherwise would have been necessary had it not been in such a location. The idea is that everyone who comes to Chicago will see this building; will see it many times and learn from it, if it is beautiful enough; then they will go away feeling that they know more about architecture and will perhaps take the lesson with them to all parts of the country. It was on this account that the colonnade, which costs a little more than a regular wall pierced with windows, was put into the building, but, in order not to let it detract from the light, the wall has been brought very close to the columns. This was studied with the idea of giving the effect of a colonnade without having the deep shadow that a real colonnade would give. At the entrance, however, there is a real colonnade, the idea being to impress upon the persons entering the building that they are going into a great monument, a place of importance, an institution worthy of their consideration and thought." (*Applause.*)

At the conclusion of Mr. Lescher's remarks, in response to queries addressed him by various members of the Association, he explained further the details of the plan as follows:

"A very thorough system of artificial ventilation was devised for the building, but it was found that it would cost an immense sum of money if perfected according to modern plans, with air ducts installed at very

close intervals all over the building. The air was to be washed as it came in, forced into the rooms and then drawn out, thus requiring two separate sets of ducts. In trying to reduce the expense we had to face the problem of an imperfect thing, and the engineers finally gave it as their opinion, that unless the most highly developed system of ventilation were installed, it was practically useless to put in any scheme other than the natural ventilation by the windows. That is why the plans as shown here show no details of ventilation at all.

"As to the heating of the building, the question of expense came in again. The ideal arrangement would be a heating plant located outside of the building, and all the pipes brought in through tunnels with the smoke stack some distance away from the building. It is hoped that at a later date this may be done; that perhaps the Art Institute may coöperate with the Museum and the South Park Commissioners and establish a central power plant somewhere in the park and supply the Art Institute, the Museum and the park buildings with light and heat.

"The location of such buildings as the Crerar Library and others, has not been definitely settled, but it is hoped that everyone interested in them will work in accordance with the Chicago plan and decide on a location which will fit into that plan, or, if that is impossible, make the plan fit into the location.

"The bids for the Museum building will be taken on granite, which in this smoky atmosphere can be cleaned to its original color, and also on a cheaper stone, like the Bedford, which does not keep its original color, but becomes a very agreeable color in time.

"The floors will all be of cement, except the working floor in the third story, which will be of wood, as there will be much running about, and it was thought wiser to give the men a wooden floor on account of its greater elasticity. The cement will be treated in such a way that the dust will be done away with to a great extent.

"I neglected to mention that in the little corners where all of our pipes, etc., are located, we have the latest improved pneumatic cleaning system for taking dust off the floors by means of a little device which sucks it up and delivers it in the basement; we will also have an improved scrubbing system which works in very much the same manner. The water comes out of a squeegee, as they call it, and when one is through scrubbing it is drawn back again into the squeegee and disappears.

"To go back to the cement floors, there is a paint for treating them, the name of which I have forgotten, but this paint sinks into the cement and hardens it so that no dust is formed by walking on it. There is no

objection to a tile floor, in fact it would probably be preferable to cement, except in the matter of expense. It is simply a question of whether a dollar or twenty cents shall be expended for each square foot, and when you take into consideration an area of 750,000 square feet, the difference amounts to quite a large sum. Linoleum was never considered, but we have considered using a material that goes under different names: one form is called Asbestone and another is called Flexolith. It is a material made in some combination that permits it to be spread on like cement or plaster: it can be put down over a wood floor. The question of expense, however, came in. The wood floor can be laid for fifteen cents a square foot, and the other costs about thirty-five cents.

"The windows in the public exhibition halls are fixed firmly in place; they are put in once for all, screwed firmly into place, with the exception of a hinged sash at the bottom which can be opened for cleaning the window and for ventilation when needed. All of the windows on the court side and on the outside are treated in that way. That is done to keep out all the dust we possibly can.

The basement of the building is exactly on the level of the ground outside. At the south end of the building are the Lecture Halls. The entrance is on the ground level through three doors into the vestibule and from there into a great lecture hall holding twelve hundred people. From the same vestibule access is had to another lecture hall seating six hundred people. All the lecture hall part of the building is thus taken care of through its own exterior entrance from one vestibule at the south end of the building. The location below the main floor of the building makes it impossible to give this lecture hall natural ventilation, and so it will be ventilated artificially, as in theatres. The smaller lecture hall has outside light and the same forced ventilation. The large lecture hall, at its highest point, where the floor begins to slope down toward the stage, will be about twenty-two to twenty-four feet in height, and from there it slopes down to the stage where the total height will be about thirty-five feet.

"We hope to have an abatement of the smoke nuisance, but we are not counting on it. The question is a serious one in this location, with the Illinois Central Railroad within three hundred feet of the building, but steps have been taken to combat this by making the windows as nearly air tight as possible.

"As to the question of having the Museum located in a suburban park, as at present, or placing it in the dirty down-town portion of the city, I believe there would be considerable difference of opinion; but I think

if you ask Mr. Higinbotham's opinion, he would emphasize the advantage of bringing it nearer to the heart of the city where all the lines of transportation come in, and where it can be visited by many times the number of people that now visit it. In other words, it is a question of its usefulness.

"The question of dampness throughout the building has been taken care of by lining all outside walls with hollow brick, thus providing an air space; the basement is also provided with hollow brick and with asphalt waterproofing to further obviate any dampness; so I think we are perfectly safe in saying that there will be no trouble.

"As to an areaway at the windows of a building of this character; no matter how carefully it is built it will be full of waste papers and dust, and we have entirely avoided using it. It does not look well in a monumental building, giving one the impression that the building has sunk down below the level of the ground."

This concluding the morning exercises, the Association adjourned for an automobile ride through Washington and Jackson parks, and a luncheon at the South Shore Country Club as guests of the Field Museum of Natural History.

SESSION OF WEDNESDAY, MAY 6

Afternoon

The Association reconvened at the Field Museum of Natural History at 3:45 o'clock, Vice-President Lucas in the chair. The regular order of business was taken up as follows:

REPORT OF AUDITING COMMITTEE

Chairman Lucas.—"The first business in order is the report of the Auditing Committee."

Dr. Oliver C. Farrington (Field Museum of Natural History, Chicago).—"As chairman of that committee I desire to report that the committee has done its best to find some defect in the report of the treasurer, but it has been unable to do so and it is therefore compelled to approve his report." (*Laughter.*)

On motion duly seconded and carried the report was adopted.

Chairman Lucas then called for the submission of papers and the following was read by Miss Anna Billings Gallup, curator, the Children's Museum, Brooklyn Institute of Arts and Sciences.

THE ESSENTIALS OF A CHILDREN'S MUSEUM BUILDING

In trying to utilize an old residence, never intended for public uses, for the work of a rapidly growing institution, one's ingenuity is taxed to its utmost every day, and needs of which one would scarcely be conscious were he to plan Children's Museum quarters without first having had this experience, suggest themselves at every hand.

In this paper I wish to enumerate some of the special needs for Children's Museum equipment in addition to the usual necessities recognized for every museum.

These are:

1. A commodious lecture room
2. A work room laboratory
3. A room for temporary exhibits
4. A light, spacious and well ventilated coat room
5. Adequate toilet accommodations.

1. The lecture room is as necessary as are the museum exhibits, and in our museum is used almost as constantly.

It is a place where we assemble the children to give lectures and to explain models, specimens, and apparatus. Children are not satisfied with mere exhibits, they look at them and enjoy them, but their interest is held and increased only in proportion as exhibits can be correlated with some form of activity.

The lecture room should be large enough to seat comfortably the classes that come from the schools for lessons and lectures, and it should be available for any gatherings that may be held in the interest of the museum and its work.

2. A work room laboratory would never lack use in a live children's museum, for children would always find it a convenient place to pursue their favorite subjects.

In this work room, the boy entomologist could care for his cocoons and caterpillars, and would learn how to preserve and mount his insects. If he should learn to use the microscope he would find another world of interest.

The child whose interest is in the plant world would germinate seeds, care for bulbs, press and mount plants, or study the spores of mosses and fungi with the microscope.

Boys who like physics and electricity would work at their problems, and so on.

3. The room for temporary exhibits would always attract attention and hold interest because of the variety and change. Here the visitor would look for the bird residents and migrants of the locality, month by month. The procession of wild flowers from the opening of the first skunk cabbage until the fall of the last autumn leaf would occupy the flower tables. Tadpoles, dragonfly larvæ, spiders, grasshoppers, crickets and all such seasonal visitors would be regularly expected. Children would exhibit their work, objects loaned to the museum could be displayed and information concerning matters of world wide interest could be emphasized.

4. The subject of coat room accommodations might not occur to anyone who has not dealt with children in large numbers, but from a hygienic point of view, this is as important as fresh air and light.

In winter, especially, when teachers arrive with from 50 to 80 children, they may wish to hear a lecture and then spend an hour visiting the museum. The ease and comfort of such a visit are greatly enhanced and much weariness of body and soul prevented, if at the outset the children can be taken to a coat room to leave their garments under lock and key. In this way the energy that would otherwise be wasted in hunting for lost gloves, pocket books, collars, etc., and in the effort to keep comfortable in a building too warm for outside wraps, can be used for the object of the visit.

I am speaking now of a city museum which has to deal with large numbers of children, many of whom travel long distances to reach the museum.

5. Children are so active and run so much, especially when on a pleasure trip, that a class never leaves the museum without making requisition on the water fountain. When each one of 80 children is thirsty the time consumed in furnishing the water supply is no small consideration.

The question of toilet accommodations is highly important for the children who come long distances, and a museum has no more right to ignore this convenience for the health of the children than has the public school. All of these matters of architectural detail are of the utmost importance when it comes to the practical administration of a public institution which has great numbers of children to serve.

And now I wish to ask your attention to the question as to whether a children's museum should be separately housed, or whether it would find a more perfect development under the same roof, but as a distinct department of a larger museum. Our own experience has led us to

recognize distinct advantages in a separate plant. In all work with children, especially young children, the personality of the teacher, is the first consideration, and upon this depends the attitude the child will take toward the subjects presented. If he loves his teacher, who in turn understands him, he eventually associates his tasks with pleasure. Though the task in itself may not be attractive, the conscious effort with the expectation of achievement, under the guidance of a congenial and sympathetic teacher who has confidence in the child, becomes a genuine pleasure. In other words, what the teacher can do for the child depends, to a large degree upon the mutual regard between that teacher and child. It is equally true that what an institution can do for children at large depends upon the mutual attitude of each toward the other. We have reason to maintain that a museum can do the greatest good and furnish the most effective help to the boys and girls who love it as an institution, who take pride in its work for them and with them, and who delight in their association with it.

To inspire children with this love for and pride in the institution, they must feel that it was created, and now exists for them, and that in all of its plans, it puts the child first. The child must feel that the whole plant is for him; that the best is offered him because of faith in his power to use it, that he has access to all departments, and that he is always a welcome visitor and never an intruder. With this assurance he will learn to care for the museum as he cares for good friends elsewhere.

Those who would incorporate the children's museum into the large museum advocate it for reasons of economy, maintaining that it is cheaper to conduct a department under the main roof, than to carry on a separate plant. The output of dollars and cents would be less in all probability, but I often wonder whether the return to the child would not also be less. Would the child get as much attention, would his good be so earnestly sought, and would his interests be so jealously guarded? As a rule cheap educational methods do not pay.

Another reason for favoring the union of the large museum with the children's museum, frequently given, is that the children's department would have all the resources of the large museum to draw upon, the large museum possessing collections of such extent and value as no children's museum could afford to own. Children in classes could be taken to the large collections, and special exhibits could be made up in the main museum and loaned to the children's department as needed.

In a large museum it is almost inevitable that the children's interests would become matters of secondary consideration. Certain depart-

ments would be closed to children at times, and others would be opened only under proper restrictions, and the extent to which the children's department could draw upon the resources of the large museum would be limited in many ways. The value of a museum to children lies not so much in the vast array of specimens available, as in the judicious selection and arrangement of specimens which the children can understand and use. The multiplication of specimens would confuse and tire a child before he could profit from them. The proposition to marshal children by classes through vast and formal halls of a large museum present difficulties because the effect of such a trip is fatigue of body, mind, and soul, while the second effect is confusion at a mass of exhibits beyond their comprehension.

Far better for the children would be their own plan, speaking through its architectural appropriateness its welcome to the boys and girls, silently expressing to them, through its arrangement and decoration, its civilizing purposes and answering quests for knowledge through the wisely chosen selection of type specimens, so clearly arranged that children can understand and easily relate them. In this way, the children's museum becomes an educational and moral force, strengthening the child where he is weak, training him in the proper use of a museum and fitting him for the fuller enjoyment of the large museum in his maturer years.

Mr. Charles R. Toothaker (The Philadelphia Museums).—"I enjoyed Miss Gallup's paper very much and I have not the least intention of disagreeing with what she said. At the same time I think our experience in Philadelphia will be interesting in this connection. Our work is not the same as Miss Gallup's. We are not covering the same field, so that what we do does not necessarily compare exactly with what they have been doing in Brooklyn. There are, however, a number of points in which our experience seems to be a little bit different from theirs.

"For instance, our museum was not designed as a children's museum, but within a few years past the children of Philadelphia have been coming to the museum in very large numbers, and we have been giving lectures and we have not found any sentiment on the part of the teachers, at any rate, nor have we heard remarks by the children which would lead us to think that it would be of any advantage to us or to the children to separate our exhibits into two departments. The same exhibits which are useful for other purposes are being used today with classes of children who visit the museum and though they might very easily be

confusing on account of their great size, they do not seem to be so, probably on account of the fact that we divide the children into small groups, seldom more than fifteen in a group, and take them about the exhibits under the care of one of our own men. Then, too, they usually come to us to study some particular country, after being prepared by their own teachers in the schoolrooms before coming to the museum.

"When they come they go first to the lecture room and we try to discuss in a lecture the points which the teacher believes we can cover better than she can. We have consulted with the teachers a great deal in regard to this matter, and have eliminated such things as the teachers have told us they could handle satisfactorily, and then we have put in as much time as possible, depending on the age of the children, on the things that the teachers tell us we can do better than they can. Then when these small groups leave the lecture room and go through the museum, if they have been studying the Philippine Islands, for instance, we do not take them into the Japanese exhibit or any other exhibit, but only to the Philippine exhibit. If it is necessary to pass through other exhibition rooms, we do so as rapidly as possible. We show them the different exhibits in the cases, and their teachers are there also to instruct them, and by the time they have spent an hour or an hour and a half they are ready to go home, and they go out without really having seen anything of the museum except that one exhibit. We find this method is of value to the museum because it brings back these children with their parents to go through the whole institution.

"The visits of the children to the Philadelphia Museums are conducted in such a way that there is no confusion about their coming, and really there could not be because we are not in a position to accommodate more than a certain number. We can take care of perhaps 12,000 children a year, and we do not wish more than we have the facilities to handle. At present, therefore, we are not asking the school boards of Philadelphia to send their children. The principals of the schools make arrangements with us and the teachers bring the classes at the times appointed. Our calendar is usually full for six weeks in advance. I am often called up on the telephone by a superintendent who wants to bring a class to the museum, and he says 'Can I bring them next week?' and is very much disappointed to find that the next date on our calendar is about two months distant. I find that many of the principals are holding out a prospect of a visit to the Philadelphia Museums as a reward for good conduct. The best behaved classes are the ones that are allowed to come to the museum, and it has on many occasions happened that a

teacher from one school would tell the pupils of another school about the visits to the museum, and then the teacher from that school would call me up on the 'phone and say that she would like to send a class to the museum. Within twenty-four hours after that class had been there that teacher would call up and say, 'I cannot keep school. These children that have been to the museum have been telling the rest of the children about it and I want five more dates.' That is the method we have adopted, and we are getting about as much of that kind of work today as we can take care of.

"We have no special force to handle this work and it is attended to by our scientific department. In a way, it seriously interferes with our work, but we look on the whole matter as a part of our service to the public. We try to serve the public in as many ways as we can and when we find anything in which our museum can be of use to the public, we try to do as much as possible to fulfill the work we see in front of us."

Mr. Henry L. Ward (Milwaukee Public Museum).—"I was very much interested in the point that Miss Gallup brought out. I do not think any museum has any great difficulty in getting the children to attend. In Milwaukee we are handling about a thousand children a week. We have all we need and we are doing a good deal for them, but that is not the question. The question is, whether we could do more for them if we were able to handle them in a different way.

"For some six or eight years I have been very much interested in following as closely as I have been able to the work of the Children's Museum in Brooklyn, and it seems to me that there are certain features there that are unattainable by the general museum; that the psychological influence of something belonging to the child is not a thing to be ignored. The teachers in Milwaukee, as far as I know, have never brought up that question, but my experience is that the teachers are not psychologists. The question has come to me a great many times, but under present conditions there is no possibility for some years at least of our being able to handle the work as it is done in Brooklyn. Were the possibility to present itself, I feel very confident that I would very quickly decide to establish a separate museum.

"The effect of a large collection in a museum which is primarily arranged for adults, must be confusing to the child. We tried our best to get hold of the child's idea of our museum, and I find very frequently when I can get down to the expression of the child's idea that there is a good deal of confusion there. A great deal has gone over his head entirely, stunned him, as it were; he has not grasped it and that cannot but be a bad feature.

"In our handling of classes we have attempted to give just as nearly as possible what we thought the scholars ought to have. Our museum, however, has not been arranged to follow school curriculums and the result is that when the child comes from the lecture to the museum he must go to this point and that point to see the things touched upon by the lecturer, and to do that he has to visit sometimes hundreds of other cases. At the same time you cannot blindfold him; he must get these other things mixed in with what he has heard in the lecture room, and I have often wished that it were practical to take all the exhibits pertaining to a lecture that is going to run for some little time and put them in a room by themselves, apart from the rest of the museum. I think they would get a little more benefit if such a thing were practicable, but it is not practicable in a large museum. Whereas, in the museum that has been designed strictly for the child, while we may not be able to do that in every instance, we will come very much nearer the ideal."

Mr. Roy W. Miner (American Museum of Natural History, N. Y.).—"There is one point, it seems to me, in which the desirability of a children's museum can be very forcibly shown, which has not yet been brought out. We have no children's museum in New York. I think it would be a very good plan to have one, but the point is that when the children in New York come to our museum we place the exhibits in such a position that they can readily be seen by the children, and not only that, but we place the labels in such a position that a child of average stature can readily read them. Ordinarily in our institution the label is placed at the height of an ordinary man, and in that respect, at least, I think that a museum for children is absolutely a necessity."

A short recess was here taken, to allow the members to witness the methods of taxidermy adopted by Mr. Akeley, as demonstrated by him.

The Association having reassembled, the proceedings were continued as follows:

President French.—"At the moment when we took our recess Mr. Baker had risen to speak about Miss Gallup's paper.

Mr. Frank C. Baker (Academy of Sciences, Chicago).—"I simply want to suggest that, while in this great city we have children's playgrounds and so many things for children, there are no children's museums and it occurred to me that this paper might lead some institution in Chicago to think seriously of establishing one. If the Academy of Sciences had the funds to do it, we would tackle the proposition immediately. Personally I think few museum men realize the importance of taking care of the

children. We forget, possibly, that the children are the future trustees of museums and it is wise from very many points of view to educate them beforehand in order that we may use them afterwards. (*Laughter.*)

Mr. F. A. Lucas (Brooklyn Institute Museums).—"I have discussed this matter informally with Miss Gallup, and I am one of those who take the ground that it would be an advantage if the children's museum could be a department of the larger museum. Mr. Ward did not treat it from quite that point of view. It seems to me the better condition would be to have a distinct children's department, with its own lecture room, its own library and its own entrance that the children would come to just the same as if they had their own museum. This would simplify the question very much.

"I am, however, entirely agreed with Miss Gallup that we should not measure this thing by dollars and cents, but by the effect that may be secured. The matter of a few dollars more or less does not matter, if we get the effect we are striving for.

"The association of the two would be beneficial to the Children's Department, as we might call it, in this way: There is a large attendance of children and sometimes a thousand come at one time when the children's lecture room will only hold two hundred. Those thousand children could be turned at once into the lecture room of the large institution and could all be talked to at once. Then too, the resources of a large museum could be drawn upon. For example, if you were dealing with South America and wished to show the characteristic animals, a case could be set aside in which could be displayed for a month the characteristic animals of South America. I think all museum men will agree with me that it is quite out of the question to duplicate specimens to the extent of providing for a children's museum all the specimens that it would be desirable to show them. I would not turn the children loose in a big museum any more than I could help, even accompanied by their teacher, because the average teacher, until she has had training is unfitted to take children through the museum. To visit the museum and wander through it is possibly a good thing, but to visit it with a purpose is a far better thing, and the average teacher does not come with any particular idea except that she is going to show the museum in as short a time as possible.

"In the point of being able to accommodate a larger number of pupils and a larger number of teachers, and in being able to provide the children with temporary and very instructive specimens, it would be very advantageous to have a children's department in a large museum, and we

have the precedent for this, as Mr. Putnam was saying, in the children's department in a library."

Dr. W. P. Wilson (Philadelphia Museums).—"I visited Miss Gallup's museum during the past year and it is one of the most charming places I was ever in. I received a great deal of inspiration there and went home determined to see whether I could not inaugurate a museum in certain lines for children, where they could get something out of it themselves. I learned a great deal in this museum myself by just walking through it. I had never been in a room that was devoted to wireless telegraphy. I found a complete apparatus in Miss Gallup's children's museum, which the high school boys had set up, and with which they were taking the messages of ships that came in and out of New York Harbor. They had a book in which they had recorded dozens and dozens of messages, and sometimes they sent back a message. There were some very funny warnings which our ships in the navy had sent out, to look out for the boys in Brooklyn who were taking the messages. (*Laughter.*) It was a very interesting and instructive exhibit. I learned more about wireless telegraphy during that half-hour in this room than I had ever known before. I had nothing in my mind but commendation. The labels were written clearly and beautifully for the children, and the whole atmosphere of the place was perfectly delightful, except that the building was small and the children's surroundings rather cramped.

"Now, for Chicago I want to say just a word. I have been wonderfully instructed here. I came a day early on purpose to visit the playgrounds that had been established here and which excell anything else in the United States so far as I know. It struck me that in these playgrounds, where you are reaching the very elements that you want to reach, turning these children away from crime and giving them an opportunity to exercise their activities in the right way, that something might be done in the way of instruction which would be perfectly delightful. I presume it has been thought of and is in hand now and will probably be carried out, but I have seen the most interesting and instructive opportunities for children here in Chicago and in Brooklyn."

President French.—"I have not heard all the discussion, but it has struck me that there has not been a great deal said about preparing the teachers to take the pupils through the museums. That might be a good topic for discussion on some future occasion. We are endeavoring to prepare the teachers to take children through our museum. During the past year we have had more than fifteen hundred public school teachers studying regularly in our evening and Saturday classes, more

than one-fourth of all the class-room teachers in this city. We hope to get the rest of them before long."

NEXT MEETING PLACE

President French then called up the question of the selection of the next meeting place of the Association. An invitation was extended by Mr. Charles M. Kurtz, director of the Buffalo Academy of Fine Arts, on behalf of the city of Buffalo, the Chamber of Commerce, the Society of Natural Science, the Albright Art Gallery, the Grosvenor Library, the Public Library, and the Buffalo Historical Society, inviting the Association to meet in Buffalo in 1910.

Dr. William P. Wilson, director of the Philadelphia Museums, extended an invitation to meet in 1909 in Philadelphia.

On motion of Mr. Baker, Dr. Wilson's invitation was unanimously accepted, and Philadelphia selected as the meeting place in 1909. On motion of Mr. Skiff, Mr. Kurtz's invitation to hold the 1910 sessions in Buffalo was also accepted, and the date of holding the convention was, on motion of Mr. Skiff, referred to the council.

President French.—"The reading of papers will now be resumed, the next paper on the list being that presented by Mr. Henry L. Ward, director of the Milwaukee Public Museum."

SOME PRINCIPLES OF MUSEUM ARCHITECTURE AND ASSOCIATED DETAILS

During the past year I have given considerable attention to the planning of an addition to the building jointly occupied by the Public Museum and the Public Library of Milwaukee. This addition, which will lack only about one-tenth of being as large as the present edifice, is to be solely for the extension of the museum; but as it will join the present building at both extremities and one side of its L shape will form part of the façade, various architectural features, as style of exterior finish, height of rooms, etc., are definitely determined *à priori* while others must at least be brought into harmony with existing and connecting portions of the building. This new section will extend 235 feet from the northern end of a west wing through the middle of the block east to the street to what will be the northeast corner of a quadrangle and thence south 107 feet to join the end of a present shorter east wing.

The land slopes sharply down to the N. E. corner so as to afford a basement twenty-five feet in height which it is proposed to utilize as a lecture hall.

The present building is three stories in height and was constructed with the idea that a museum should consist only of exhibition halls, a suite of offices and a library room. The department of taxidermy, which is the only department of preparation as yet at all adequately organized, is located in the basement, the ceiling of which is but a few feet above the ground level. In order to provide suitable quarters for the taxidermists and other preparators, many of whom are still to be added to the force, to bring the administration in close contact with these and to provide adequate storage and study facilities, I have planned to build an additional story on the north member of the completed quadrangle, but to stop this extra story thirty feet short of the east and west faces of the building so that it will not show from the adjoining streets and can only be seen from the rear or from a distance.

Having determined on these general features there have been a host of details to be considered and concerning many of them I am free to confess I do not feel altogether assured that I have the right solution in mind. Inasmuch as the main features of style of architecture and height of new halls has been fixed by those existing and which these must join, and as the ground plan has also been largely determined by the available space on which to build, it has been out of the question to approach the subject, as recommended by Dr. Meyer, by building the halls about predetermined case units and so I have resigned myself to the unidealistic but practical frame of mind of taking what I can get. Even with these curtailments of volition there are various important matters to fight out with the architects.

It is my opinion that when an architect secures the contract for preparing plans and specifications for a large public building he too frequently concerns himself less with the uses to which the building is to be put than he does with the opportunity to create an architectural monument for himself and that, in this conscious or subconscious determination, utilities are kept subordinate to adornment. Only by such an hypothesis can I account for loading a presumably fire-proof building with thousands of feet of combustible wood made into wainscots, massive window frames, heavy base boards and redundant doors; or the paneling of ceilings with heavy complicated plaster mouldings as has been done in Milwaukee.

I believe that since youth it has been my opinion that museum build-

ings should be as nearly fire-proof as possible and to this tenet I have added that they should be beautiful only in their simplicity, so that the contained collections may give character to the rooms without the necessity of overcoming garish and inharmonious adornments. In my confession of faith it is written that I believe in beauty, but that it must be the beauty of usefulness or of appropriateness or of simplicity. Many of you will probably recall in this connection the admirable harmony secured in the Pueblo room at the Museum of the Brooklyn Institute and can conceive how difficult it would have been to have secured such an atmosphere had the room been loaded with Corinthian pillars and moldings. I do not think that appropriate ornamentation of museum rooms is out of place, for in certain characters of exhibits it may aid; as for instance in a hall devoted to Egyptian archaeology, the characters of the adornment if of that people and period might add materially in producing the atmosphere in which the collections would be most advantageously shown. But if the character of the ornamentation is purely conventional, has been introduced merely for the sake of ornamentation itself and is thus emphasized, then it must certainly strike an inharmonious note and weaken the effect of the exhibits by as much as it attracts attention. My ideal of an exhibition hall is one in which a visitor might spend hours without being conscious of anything in it except the specimens or groups. With these thoughts in mind I am striving to have our new halls left as free from woodwork and unnecessary ornamentations as possible.

In considering the division of the halls into rooms I confess to an inability to predicate what may be the future development of the institution. It has no reserved site for future additions and consequently no plan for a completed structure was ever made. Nevertheless I am going on the principle that eventually it will occupy the entire block. Were it possible to plan for this with the assurance that, when needed, additional portions of the building would be forthcoming then it would be easier to settle on permanent divisions. My present idea is to make most of these exhibition halls entirely open and then add division walls of hollow tile or of expanded metal and adamant as temporary structures which can be removed and reconstructed elsewhere when desirable.

My belief is that all exhibits of a kind should be brought together and separated by some opaque barrier from those of any other class: that an exhibit of Coelenterates, for example, is better to be in a room by itself than to share it with Porifera or with Echinodermata. The ordinary visitor is slow to notice the line of demarcation separating one group

from another and so is prone to apply to one that which a label has taught him pertaining to another. My observations of visitors to our present large rooms, two of which contain many classes of objects, is that they become hopelessly mixed with going from specimens of one class to those of another and then back to the first without seeing anyone in its entirety at one time. If we can emphasize this transition by a physical barrier we can more effectually concentrate attention and have group labels for classes, orders, etc., applied only to those forms for which they were intended. It will not be practicable, probably, to carry out this idea completely because of the small extent of some of the collections and very likely some separations will have to be made by case arrangement rather than by distinct rooms.

Although I have to say it to the architect, and to my sorrow and expense have had to correct some of the present building's shortcomings in this respect, there is little need to say to museum people that doorways must be made large enough to admit of the ready shifting of cases or of the introduction or removal of the largest specimens that it may be desirable to place in any room.

In our present building the rotunda and adjacent hallways are floored with mosaic, much of it in intricate, many colored patterns. This has a most exasperating habit of developing ugly cracks and coming loose. I am inclined to think that this common fault of such floors is due to the attempt to wed masonry to a steel frame building. The expansions and contractions must be unequal and probably account for much of the commonly observed instability of such floors. Some of our patterns would cost well up into the thousands of dollars to relay. Last year one of the less intricate panels only 8½ feet by 11½ feet came loose and was relaid at a cost of a little over \$600. This is too expensive for flooring whose appropriateness is at least problematical. I desire a smooth, durable, neat, inconspicuous and incombustible floor that will not come loose if heavy objects like cases are rolled over it. It should be easy to clean and should be as noiseless as practicable. I would like to know what has been the experience of different museums with different kinds of floors.

The long arm of our addition will lie east and west, consequently giving a south exposure on the enclosed court. My intention is to have ground glass put into these windows in order to obviate the deleterious effects of direct sunlight upon the exhibits or the necessity of having the shades drawn for a considerable part of the day.

Milwaukee is not a smokeless city. Soft coal is burned under most

boilers and many of the chimneys near the museum emit much black smoke so that it is impracticable to use the surrounding air directly for ventilation. The present building has a system for purifying the air by washing. It is then passed by large fans into a chamber where it is heated by steam coils to the desired degree and by means of the fan pressure is forced through ducts that open near the ceilings into the various rooms. It is supposed to maintain about a half-ounce pressure in these rooms which will cause the lower strata to ascend outlet ducts running from near the floors up to the roof. Notwithstanding the fact that two fans, respectively ten and twelve feet in diameter, are working at a considerable velocity the ventilation is not very satisfactory. The system seems to have been based on the false premise that each room would be a unit, closed to the outer air, a condition not practicable nor desirable to maintain. With doors and, not infrequently, some windows open the air finds other exits than those provided for this purpose and even where some smaller rooms are closed it seems that the air forced into these makes a circuit to the outlet without displacing a considerable part of that contained in the room. Were it practicable to have numerous inlets in various parts of the rooms and remove the air by suction I believe that better results would obtain. I have recently had a ventilating shaft constructed at the upper end of which is a four foot disc fan run by a 5 horse-power motor. This is capable of removing 13,000 cubic feet of air per minute and affords very satisfactory ventilation for the three small rooms with which it is connected.

In this matter of ventilation I have not been satisfied as to whether it were better to exhaust the air from near the floor or near the ceiling and so in two of these rooms I have caused outlets to be cut in both positions but have not yet had opportunity to determine whether the upper or the lower ones give the better results.

There is one feature of our ventilation which I do not think was considered at the time of the installation of the system but which has appealed to me as a rather valuable one for a museum. I refer to the fact that our air, even in the coldest weather when the most heat is used, has a fair degree of humidity. It does not contain as much moisture as it does in summer time when it is only washed and not heated; but it certainly contains much more than would be the case were the heating by direct radiation. Such a condition is not only more healthful and pleasant for the people within the building, but also better conserves most of the specimens and the cases containing them which are of wood.

The lecture hall that we will build in the basement will seat upwards

of 700 persons. The satisfactory ventilation of this room will be a very important matter and I would like information as to satisfactory methods installed in similar halls in other museums.

It may be of interest to note that our architects have evolved a method of leaving this lecture hall, which will be about 90 x 70 feet, free from columns and its ceiling from heavy trusses by supporting the floor above by means of trusses coming down from the side walls and holding up the floor. This of course will necessitate partition walls where these trusses will occur in order to cover them.

In the offices and work rooms I have planned to secure as complete fire proof construction as practicable, eliminating all possible woodwork, even to the extent of using metal doors and door casings.

Convenient transportation of large objects will be secured by installing a freight elevator of the dimensions of that in the Carnegie Museum, i. e., 9 x 16 feet.

Cleanliness will be facilitated by the use of the vacuum system of cleaning by which dirt will be sucked through pipes into a receptacle in the basement.

Were we to adopt a theoretically scientific arrangement of the contents of the museum we would have to begin with that which is extraneous to the earth, meteorites, then follow with geology and end with man. But adopting Huxley's idea that it is better to go from the known to the unknown and as most museum visitors know least of the inorganic kingdom and of the lower forms of the organic, we propose to start with man, devoting the entire first floor of the building to anthropology, which will be followed by mammalogy, ornithology, etc., down the line but up the several stories.

You may have noticed that I have planned to put all the offices on the top floor. There would be certain advantages in having the rooms of the various department curators on the same floors that their respective exhibits will occupy, but the planning of the building seems hardly to admit of this and I am inclined to think that the advantage of keeping all department heads in close touch, one with another, and forming a sort of cabinet to the director will not unlikely be of even greater value.

President French.—"Mr. Ward's paper is open for discussion if it be the will of the Association. If not, we will ask Mr. Lucas to give us the paper which he had modestly put down behind the others when he was in the chair, because I know there are several persons who desire particularly to hear this discussion on lectures."

DISCUSSION—DO MUSEUM LECTURES PAY?

Mr. Frederick A. Lucas, Curator-in-Chief of the Museums of the Brooklyn Institute of Arts and Sciences, opened the discussion as follows:

"My subject is, Do Museum Lectures Pay? and I wish to confess that this is not a set paper but a subject I am bringing up for discussion in the hope that I may get either affirmation of my own views, or encouragement that I am wrong.

"For the last year or two I have been led to question very strongly the utility of the average museum lecture and to query whether or not the same amount of time, energy, and money put into museum exhibits would not do more good. Let me say that I live in the most be-lectured city in the country, and I am perhaps somewhat biased in my views, but when I see the best lecturers drawing an audience of from fifty to one hundred and fifty, and good lecturers an audience of from fifty to one hundred, I am led to question the utility of those lectures. The lecture must appeal to a limited audience. The museum exhibit accompanied by a label appeals to an audience of thousands. The time put into a museum lecture would write a hundred museum labels. The amount of trouble taken in preparing the lantern slides would prepare one or two good exhibits.

"That, I think, is about all I have to say at this time. As I stated in the beginning, this is brought forward rather in the hope of discussion, than to state any pronounced views of my own."

Secretary Rea.—"It has been my experience that I reach entirely different classes by my lectures and by my exhibits. Some of the people who come to the lectures never come to the museum at other times, and for that reason in my plan for the new building I have placed the lecture room at the farther end of the main exhibition hall in order that those who come to lectures and never come at other times might gain some information as to what the museum contains. As for the school children, they will almost always take a lecture in preference to a trip around the museum with their teacher or a museum guide, if given the choice."

Mr. Lucas.—"I would like to say that I would make a decided exception in regard to lectures for children. I quite agree with Mr. Rea and with Miss Gallup that the lecture does appeal to children, and you can get directly in touch with the children there and suggest to them the value and utility of the exhibits."

Mr. E. E. Blackman (State Historical Society, Lincoln, Neb.).—"My experience in the West is this: we have doubled the number and value

of the exhibits in our museum wholly through popular lantern slide lectures throughout the state. A lecture without a lantern nowadays is not worth considering. We find it absolutely essential to carry a lantern for our lectures. I stand in favor of lectures throughout the state so far as the historical society museums are concerned."

Mr. A. H. Griffith (Detroit Museum of Art).—"I have some hesitancy about talking in regard to lectures, for I do nothing else and I believe they pay. (*Laughter.*) They pay in the results they bring to the museum. Let me say to you, Mr. Lucas, that all lectures do not pay either by the intelligence they give or by the dollars they take away from the pocket. We have a great many popular lectures in Detroit, in the museum, in the historical society, and in the art institute. The great difficulty with most lecturers is that they are over the heads of their audience. I will give you one evidence of that which to my mind is a striking example.

"I was not very well a couple of years ago and I asked a gentleman who is one of the best experts on coins in this country, and whose father was an expert before him, and who has a magnificent collection, one whom you would all know if I mentioned his name, to come and give a talk on coins. He said he would be glad to do so. Well, the first thing he did was to bring 200 coins, 175 too many. It is like going to a great big banquet and coming home with a headache—you cannot grasp it. Then he got up and talked for an hour and a half on the technical side of coins and collections, and there were possibly ten collectors, young men and boys, out of a thousand people in his audience. I said to him going home that night, 'Your lecture was a failure. It is like what the old Scotchman said to me up at Battle Creek when I gave a lecture on Scotland, 'It is nae gude.' 'Why?' 'You never mentioned my town once.'" I found his town was a settlement of a dozen houses up in the mountains, but the lecture was 'nae gude.'

"Now this man told very few things that would catch the popular crowd yet he was not talking to a lot of students but to people who came there to be educated and entertained at the same time. So I said to him: 'I don't know anything about coins; I never gave them any thought nor study except in getting them into my pocket and spending them again. May I come up to your house and talk to you five or six evenings and ask you questions? I am going to give a talk on coins.' 'Why,' he said, 'come ahead.'

"I went up there and spent four or five evenings with him until twelve o'clock. He was a marvelously entertaining talker when you asked

him questions and drew him out, but you had to take hold of him just like a sponge and squeeze him to find out what you wanted to know. Then I picked up some books and said, 'Will you loan me twenty-five coins?' 'Yes.' I did not take the coins that he looked upon as being most interesting, but I took the coins that I thought would appeal to the people. I delivered that lecture and I have delivered it at least twenty times since and every time to a full house. I began by taking a coin out of my pocket because I wanted to attract the interest of the crowd and I asked them if they ever noticed that the stars on one of our coins were six pointed, and on our flag were five pointed, and would they tell me why.

"Every man in that whole crowd immediately took out a coin and began looking at it. I had my crowd with me then and I went on telling them such things as the romance of some coin, or describing the smallest copper coin ever issued. When Queen Victoria went on the throne the people were very poor; they had to take their clothes to the pawn shop until Saturday night and take them out for Sunday in order to go to church. She found that with the half-penny the bulk of the money went to the money-lender, and so she issued a coin making thirty-two for an English penny, or about one-sixteenth of our cent, and those coins were so little the people wouldn't use them. They were lost and you only find them now and then in a collection.

"Alongside of that coin I put one issued by Denmark when it wanted to put in its coins the actual value in copper, six dollars of copper in a big square half an inch thick. There was your object lesson. I could have talked to those people for two hours.

"Your lecturer fails because he imagines he is talking to a lot of students when there is only a real student here and there, though they are all students in the broader and wider sense. The lectures have made the Detroit Museum. While you may say that it is a little museum in the backwoods, still it has done something, and it has done it through lectures.

"It is generally conceded that seventy-five per cent of all the intelligence of the world comes through the eyes, and twenty-five per cent through the ears, but if you can combine the eyes with the ears you can get one hundred per cent. So we use pictures, we use everything we can get our hands on and we use words, too, at the same time, and I believe that a museum owes to its people, to its patrons, and to its visitors all the intelligence on every subject of human interest and human endeavor that it can give, and is not fulfilling its purpose if it does not give that intelligence.

"I say, give lectures. The difficulty with us is that we have a hall into which we crowd a thousand people and turn away two thousand, not only on weekdays but every Sunday, no matter what the weather is. We dare not give public notice of the talks we give to the pupils during the week, for if we did the pupils would not be able to get in. We have tried that and found it a failure, and so we only give notice to the pupils, without any public notice at all except what they get from their teachers. Lectures pay! They pay one hundred cents on the dollar."

Mr. Roy W. Miner (American Museum of Natural History, New York).—"I have been very much impressed with what the last speaker has just said, first, that all lectures do not pay, and then his inference that some do pay. I believe that thoroughly. I believe in the first place, that lecturers must be selected, not on account of their reputation but on account of their ability as lecturers. The lecturer must have a voice; he must have a hall in which that voice will not be lost. Again, the lecturer must have a subject which has some living interest for the people. He must have adequate means of illustrating his lecture. Illustrate it by the stereopticon by all means, if possible, and use colored slides. A colored slide will hold the attention and the eye and will excite interest where the very best uncolored slides would be passed by with scarcely a glance. A colored slide will bring out things which would never be noticed under any other circumstances. I have seen a colored slide of an ants' nest which was extremely interesting, though the ants' nest, itself, in an uncolored slide does not amount to anything in particular. Nobody will get sleepy when they can see such a slide beautifully colored, even though the color does not always concern the central theme.

"There is a lecturer in this city who has made a specialty of lecturing on Yellowstone National Park, a subject of interest to everyone, and we had him lecture at the American Museum of Natural History. He had a splendid series of colored slides, a good lecture, well prepared, and at least two hundred beautifully colored slides. His lecture was at least two hours long, with a slight recess of ten minutes. Our hall, which seats 1500 people was packed, because, I think, the subject was of general interest and also because it was announced that the lecture would be illustrated with beautifully colored slides. You could have heard a pin drop during the entire time, and after that lecture I did not hear one expression of weariness because of its length.

"Again, a famous lecturer came to our museum to lecture upon a

scientific subject, which was one also of popular interest. The subject attracted a large audience, but the lecturer's voice was weak, and could not reach the audience, and although his subject was an extremely interesting one, I am sure he did not look at it from the point of view of those who heard him, and therefore people got up and went out before the lecture was half finished. That is the kind of thing that kills not only a lecturer but a lecture course. The next time we had a lecture many people who had come to the first lecture to be entertained and instructed, did not come again. They said, 'Oh, no, we can spend the evening to better advantage elsewhere.'

"We have a gentleman at our museum who is, I think, an example of a good lecturer. He lectures on birds, uses beautifully colored slides, field experiences, and has a splendid voice and interesting manner. Every time that man is on the program he draws a crowded house. Now New York is a place that is filled with as many distractions as it is possible to get together in one place and people are not going to come to lectures unless they expect to be entertained by them.

"When Peary lectured in the American Museum of Natural History we announced the fact by a small card in the newspapers and by invitations to members. A few circulars were sent out. As I said, our hall will seat 1500 people. We could perhaps, crowd two thousand people into it with the kindness of the fire department. That lecture was held in the afternoon. How many people do you think came to it? Thirty-two thousand people tried to get into that house! We had to have an orchestra on the second floor to entertain the overflow. We did get two thousand people into that hall and I think perhaps more. We have about two thousand members of the museum, who, of course, thought that they had a special mortgage on that lecture and came and who could not possibly get in. The doors had been closed about half an hour before the time set for the lecture, and they turned away disgusted. Perhaps it is a bad thing to have the lecture too successful, but I think it came out all right in this case because we had to repeat that lecture and of course it drew large crowds. It was given once for the members of the museum only and they felt happy.

"You can see from this instance that lectures are not failures in themselves, though some are failures. If the spoken discourse was a failure, why was the Roman forum crowded to its utmost capacity, not by those who came to hear lectures illustrated by lantern slides, but who came merely to hear men who could talk on living subjects that met the hearts of the people, that made the people themselves feel as though they would

like to get up and shout out every sentiment the man uttered. It was because a man lectured to them, who was brought up from his early youth to know how to lecture and not merely to magnify his own name. Of course, his name was magnified at the same time and we still speak that name today. The lecture cannot be a failure if the lecturer is selected, because he is a good lecturer, and I think that an intelligent man, a man capable of grasping intelligently subjects even of the complex character which are agitating the scientific world today, can interpret the most complicated scientific problem to a crowded house at any time during the present day, but he must be chosen on account of his ability."

Mr. F. C. Baker (Academy of Sciences, Chicago).—"I concur very heartily in what the last two speakers have said. At the Academy of Sciences we have carried on lectures nearly 14 years. We give about 35 or 40 of them every year on Friday nights. We have found that if we have a lecturer, who, as the last speaker has said, 'reaches the people,' that we can always have a crowded hall. We have found further that one lecturer who does not present his lecture in a concrete manner so that the people will understand it, will ruin the whole lecture course. I have had courses in which, say, five lectures out of the seven were splendid and the two which were not would spoil the other five, particularly if they came first.

"I have had the same misgivings that Mr. Lucas has had and I have asked myself the same questions. I have been doing this during the last two or three weeks, because I consider our last lecture course a failure. But, taking the average of all the courses we have had, and looking at it from all standpoints and particularly after analyzing the reasons for the failures, I have felt that perhaps the responsibility rested upon me, for the reason that I was not careful enough in choosing those lecturers who could present a subject in a manner interesting to the audience. That is the great point. I think we must have lectures. As I look at it now, I do not think that I would attempt to discontinue our lectures.

"I can think of at least forty people who have come to those lectures regularly, week after week, and if a lecture course is delayed for two or three weeks, they come to me and ask me why it has been delayed, and if I am going to give them up. On one or two occasions I have suggested that we might have to give them up, and they have said, 'Don't do that. The giving of those lectures entirely free of charge is one of the best things we have on the North Side.' I think that the most important thing we have to look at is the careful selection of the lecturer."

Mr. A. R. Crook (Illinois State Museum of Natural History).—"For

two years we have been having lectures at Springfield and they are most successful, never less than 400 and sometimes 700 in attendance. From the crowds that attended we felt that the lectures were a success and that the audience also considered them a success. Possibly the difference is in the matter of advertising. There are three points to be considered; first, the hall; second, the man who knows how to talk; and third, the man who knows how to let the people know of the lecture and get them there.

"Our method is to send out a little notice to the families in our town, possibly a thousand or two thousand cards, telling them of the lecture course. We have found that method very satisfactory."

Mr. L. L. Dyche (State University, Lawrence, Kansas).—"Being a lecturer myself, I do not know whether I ought to have anything to suggest to you or not, but what do people go to lectures for, anyway? During the past twelve years I have delivered something like four hundred lectures, and I never went anywhere to deliver a lecture unless I was invited, so that the people were responsible. I have wondered myself why they came to hear a lecture and, as I walked about, thinking over what the lecture would be, I have decided first that the people must be to a very considerable extent amused. They must be entertained, and if they are neither amused nor entertained the lecture is a failure. Second, instruction must be worked in as best it can."

Secretary Rea.—"If I may trespass on this discussion once more for a moment, I think that there are two things that are sometimes neglected in considering the factors which contribute to the success of a lecture. One is good ventilation. I have seen people go to sleep as though they were chloroformed, simply because there was not proper ventilation. I have also seen people get sleepy and rub their eyes because the electric lights were shining in their faces. I think those two factors alone are the cause of many failures."

Miss Delia Isabel Griffin (Fairbanks Museum of Science, St. Johnsbury, Vermont).—"In the backwoods of Vermont we have found lectures very successful and even with the small amount of money which we have, and our small museum, we do not hesitate to get good men from other museums to come up and give us lectures several times a year. When we have arranged for what we consider a small lecture, say 250, it frequently happens that we will have 500 in the audience, or 700 when we have arranged for 500. We believe emphatically that lectures pay."

Dr. W. P. Wilson (Philadelphia Museums).—"I heard the word 'Sunday' used by one of the gentlemen who were talking about lectures. I

would like to ask if anyone could lecture here in the West on Sunday."

Mr. Griffith.—"I will be very glad to answer that question. When I opened the museum on Sunday, every pulpit in the city of Detroit berated me. I did not pay any attention, but opened the museum, and I thought the people would wake up to the fact by and by that it was all right. Later by an accident I began a series of Sunday talks. I did not expect to carry them on, but that was fifteen years ago and those Sunday talks have grown and grown until today every minister in the city of Detroit will tell you that the museum is doing more to settle the Sunday question than any other institution in the city of Detroit. The city of Detroit has built for me one auditorium at a cost of \$50,000. Today they have a committee appointed by the city council to act with a committee from the museum to secure additional ground on which to build another auditorium to take care of the Sunday lectures."

Dr. Wilson.—"At what time on Sunday do you give the lectures?"

Mr. Griffith.—"I give them Sunday afternoon."

Dr. Wilson.—"I had another question to ask the gentleman, evidently from New York, who mentioned the membership in museums. I am always anxious to get hold of anything that brings in money, and I had an idea that membership in connection with a museum meant money. I would like to have an explanation of that membership of 2000."

Mr. Miner.—"We have about 2000 in our membership and that means ten dollars a year for each active member. In the American Museum, any person upon the payment of ten dollars is entitled to become an active member."

Dr. Wilson.—"What privilege does that give?"

Mr. Miner.—"The privilege of the publications sent specially to each member, special tickets also for the various lecture courses, and a special opportunity for the children of members to be conducted about the museum by a guide, a lady employed for that purpose. Formerly, when we had two pay days a week, the members with their children were allowed to enter free on those days. At present every day in the week is a free day.

"I should say also that there are other classes of members; the life member and the patron. The life member pays one hundred dollars and the patron pays a thousand dollars."

Mr. E. K. Putnam (Academy of Sciences, Davenport, Iowa).—"I think we are learning by experience in Davenport that while some of these lecturers talk over the heads of the people, still they are desirable

at times, and we can adapt our conditions to them by preparing for an audience of fifty people, whereas with a popular lecturer we would prepare for an audience of 500 or 1000. We have a lecture course every year, and we have not charged for admittance until the last two or three years when we have admitted our members free. These members look upon the admissions to the course as one of the principal reasons for being members, although the membership costs more than the tickets to the course. We are contemplating now going back to the absolutely free lecture course, because we lose money on it at best and we figure that we would lose less money by giving it away than by charging admission, because it would be less expensive to give.

"I would like to get more information as to whether the institutions in New York admit the public to these lectures free, or whether there is a charge for admission."

Mr. Miner.—"The lecture courses in the American Museum are given in different categories, that is to say, we have a series of lectures for members. The cards for those lectures are sent out to members only, admitting them with their friends. The public lectures are in a separate course and are advertised generally. The public is invited to attend. There is no admission of any kind charged at the American Museum."

Mr. N. H. Carpenter (Art Institute, Chicago).—"The Art Institute of Chicago has a series of lectures every winter, perhaps 30 or 40, to which only members are admitted. We have a list of members comprising in the neighborhood of 2000 or 2200 annual members, 250 governing members and 250 life members. This means that from a pure monetary standpoint the lectures pay splendidly. For every dollar that we pay out for lecturers, I think we take in ten.

"Another point that occurs to me is the statement of Mr. Lucas in regard to the amount of labor it takes to prepare a lecture, and the amount of time taken in looking up a lecturer. There are lots of people who are glad to come and deliver lectures. Mr. Skiff said that he did not have any trouble in securing the very best lecturers here because it was sufficient inducement to the lecturer to get the opportunity to come to the Field Museum and deliver a lecture, and that is the standard we wish to adopt in the future. Then we shall be able to get all the lecturers we want."

Mr. Lucas.—"I would simply like to say that I have derived great encouragement and I suspect that, as a physician might put it, in Brooklyn we have merely a little 'local complaint.'" (*Laughter.*)

The business to come before the afternoon session being completed, on motion an adjournment was taken to meet at the Chicago Historical Society, Thursday morning, May 7, at nine o'clock, and from there to proceed by automobile to the Chicago Academy of Sciences, where the closing sessions of the conference were to be held.

SESSION OF THURSDAY, MAY 7

Morning

After inspecting the Chicago Historical Society building, the members assembled at the Chicago Academy of Sciences, at 10 o'clock A.M., President French in the chair.

President French.—"We are glad to find ourselves the guests of the Academy of Sciences, and I will at once present to you Dr. Chamberlin, president of the Academy."

Dr. Chamberlin.—"Mr. President and members of the Association; it is a very great pleasure to welcome you to the halls of the Chicago Academy of Sciences. The Academy profoundly desires to pay its respects to this Association, not only because of the Association itself and its membership, but because of the cause which it represents. The Academy participates with you in profound interest in museums and their development, and it esteems itself peculiarly fortunate that you should meet in its halls, and bring to it and to all of us something of that definite purpose which we know actuates all true museum men. The Academy desires to be serviceable to you in your great work, and it trusts that you will feel that you are in possession of its halls and if there is anything here or within our reach that will serve your purposes that you will make use of it most freely and most heartily.

"The Academy desires also to be serviceable to you in presenting in the concrete one phase of museum endeavor which is being attempted in the city of Chicago. You will, perhaps, readily recall that when you visited us before, as I trust many of you did, that Chicago spread out upon the plain so that we did not know where it reached, whether to Iowa on one side or to Canada on the other, or just where it did limit itself. You found no museum here at that time worthy of your attention or special respect. This Academy had a museum of considerable dimensions and of considerable value in its early days, but it has passed through successive fires, and whatever results it may ultimately present will have been tried by fire, though we trust we shall not be submitted to further

trials of this particular kind. With the loss of the Academy collections, with no large institution immediately within the city which had developed a collection, without public interest, you found practically nothing here. Yet we trust you have been somewhat encouraged by your recent visit in finding yourselves in concrete contact with three institutions which are endeavoring to develop an interest in museums in different forms, and this Academy in its modest way can only contribute to your entertainment in that it represents one of these endeavors, a modest endeavor, because the Academy has had its limitations as well as its complications, and yet, out of it, it seems to be emerging into its heritage.

"I think you will all agree with me that the problem of museum development is an exceedingly complex one, and that the problem of museum adaptation is perhaps even more difficult and complex than that of museums themselves. In a city constituted as this is, perhaps in any city, there is a problem of adaptation of the museum to the community, to the purposes of the community, and to the institutions which are already established in it, so that it shall reach the largest portion of the community, and shall do that portion the largest amount of good. At least, we have felt that problem very severely here in Chicago, and each of the museums of the class which is here represented has been feeling for its place, has been feeling the situation, feeling its own resources, and trying to find that situation, that line of endeavor, that mode of installation, that development of all details that will give to it its best adaptation to the community, and enable it to do that which is best in its own particular line.

"You have been fortunate enough to meet under the beautiful auspices of the Art Institute, and you have seen something of its endeavors and its great success. You have been fortunate enough to meet under the auspices of the Field Museum, and you have come in contact with its endeavors, and if you have followed those endeavors with minuteness from the time when it was instituted at the close of the World's Fair to the present, you have seen that it has been feeling for its place. It was inaugurated perhaps with a wider range of enterprise than almost any museum in the interior, and yet it has found it feasible to withdraw from relationships partially established, from certain endeavors of its own, and to find for itself a place of limitation, large as it is, and great as it promises to be.

"In this Academy it has been necessary to find still more moderate limitations, and to put itself in relationship to the community in its own particular way. There was for this Academy and for this museum the

question whether it should unite with the larger institutions of the city and give to it a concentrated museum endeavor. The majority of the members of the Academy felt that it would, in the long run, accomplish most if it kept itself in its individuality somewhat independent or aloof from the great endeavors that are taking place within the city, and so it has remained a measurably independent institution, working cordially and heartily in relationship with others, but at the same time endeavoring to find its own place and accomplish its own work.

"And so it is a pleasure for us to have you meet with us, to look into this phase and other phases of the problem, and give us such recommendations or suggestions and advice as may help us in our endeavor." (*Applause*).

President French.—"I am now certain that the association will feel entirely at home although we have been such a short time here."

Before proceeding with the reading of papers, at the suggestion of President French and on motion of Mr. Crook, the speakers in the discussion were limited to five minutes time within which to address the convention.

In response to President French's call for papers, Dr. Oliver C. Farrington, Curator of Geology, Field Museum of Natural History, Chicago, presented the following paper:

SOME PRINCIPLES OF CASE DESIGN

Museum cases are designed primarily for the exhibition of objects, secondarily for their preservation. I say primarily for exhibition, for if preservation was the chief purpose it would seem best to obtain this end by placing the objects in an iron safe. Granting, however, that exhibition is primary and preservation secondary there seems to be but one substance which can be used for the construction of cases which has properties favorable to the attainment of both. This substance is glass. If it be granted that glass possesses these properties best adapting it both for the exhibition and preservation of objects, an ideal case would seem to be one constructed wholly of glass. Glass possesses, however, certain other properties which are unfavorable, chief among which is the fact that it cannot be readily joined. It is therefore usually considered necessary in practice to place it in a framework of some substance which permits of easy joining. The conclusion seems to be obvious from our first principle, however, that this framework should subtract as little as

possible from the total glass. Two classes of substances are suitable for such frameworks; one is wood, the other metal. The relative merits of these need not here be considered in detail. Metal obviously subtracts less from the total glass, but is less easily worked and to many possesses a repellent aspect. Whichever substance is used the question of durability and economy in the variety used should be considered. Of all the metals steel probably excels in cheapness and rigidity, and hence is almost the only one that need be considered. Of the woods, hard woods obviously present less obstruction to the view than soft since they possess greater rigidity to a given amount of surface. Further it may be noted that a wood which can be employed in its natural color has the advantage of requiring less refinishing than does one which serves simply as a foundation for paint.

Having chosen as materials glass held in a rigid, attractive framework obstructing the view as little as possible, the size and shape of cases may be considered. Objects exhibited in a museum are intended to be seen by eyes of individuals of the genus *Homo*, and for the most part by individuals of this genus sufficiently intelligent and mature to read. The height of individuals of this genus possessing the qualifications referred to, varies from four to six feet; and the greatest distance at which labels printed in ten point type can easily be read in a room lighted by diffused light by the eyes of such individuals is thirty-six inches. This distance was kindly and carefully determined for me by a number of experiments by Dr. J. H. Buffum, a well-known oculist of this city. Dr. Buffum also reports the interesting fact that the distance is considerably affected by the amount of light. It may be nearly doubled if the type is read in direct daylight, but if the illumination is weak the type must be brought nearer to the eyes. The size of type which I have mentioned probably represents also about the degree of detail that a visitor would wish to observe in an object. Hence both to see most of the objects of a museum and to read its labels it is obvious that these should not be removed more than thirty-six inches from the eye. This shows that both the vertical and horizontal extent of cases lie within rather narrow limits. Vertically these limits may be said to be from eighteen inches above the floor to eighty-four inches, and horizontally not over thirty-six inches. In addition it should be noted that many objects need to be brought much nearer the eye than this, and it may be safely stated as a general rule that all objects in a case should be brought as close to the eye as possible.

Museums are housed in buildings. These buildings are usually sub-

divided into rooms or halls. A hall filled with cases of the maximum height which has been mentioned is liable to present the aspect of a forest, in which the observer "cannot see the woods for the trees." Hence therefore the mental peculiarities of the genus *Homo* must be taken into consideration. The genus *Homo* does not wish to become lost in a forest of cases any more than in any other kind of a forest. More mental satisfaction is obtained if a glance from the entrance affords a conception of the contents of a hall. Hence in the *floors* of halls cases should not rise to the full height possible, while about the walls of the halls they may do so. Considering first cases which are to be placed about the walls of a hall, it is obvious that one side is not required to be of glass. Accordingly this may be made of a cheaper and more workable substance, of which the cheapest and most workable is wood. Having made the backs of the cases of wood, such wooden backs may be utilized for the support of the objects to be exhibited. These backs should be plain and not obtrusive in any way. The nature of the support of objects upon them depends upon the nature of the objects. If they are large and light they may be hung on hooks. If small and light, or small and heavy, or large and heavy, they had best be placed on shelves. Such shelves should be as unobtrusive as possible and placed on unobtrusive supports. Moreover they should not be at a uniform height for any great distance, partly because of the monotony of effect and partly because variation in the size of the objects to be installed upon them requires different distances. The substance of the shelves may be glass, wood or metal. Glass has the advantage of being unobtrusive and of permitting light to pass through to objects beneath. It has the disadvantage of brittleness and lack of friction sufficient to hold objects in place. The respects in which glass is lacking are those in which wood excels. On the other hand, wood is opaque and in order to prevent warping and provide requisite strength must be at least $\frac{7}{8}$ of an inch in thickness. It is thus more or less obtrusive and wasteful of space. The obtrusive effect can be in part overcome by beveling the edge toward the eye. Metal can hardly be said to have any advantages for use in shelving and it has the disadvantages of both glass and wood. Whatever substance is employed, however, the shelves should be short so as to be adjustable at brief spaces. As to width, if wood is employed the width should grade from the widest at the bottom to the narrowest at the top so as to provide light, especially if the hall is lighted from above. If shelves should be unobtrusive and inconspicuous so also should be the means of support. The means of support should also be changeable within small intervals

of height and to a certain extent of length. Such changeability was secured ten or twenty years ago by the use of clumsy brackets fitted in homely slots, the effect of which was often to make brackets and slots the most conspicuous things in a case. It is to be hoped that the period of employment of this clumsy device has come to an end. Metal supports undoubtedly afford the greatest amount of strength for the least amount of substance, and steel excels among the metals in rigidity and toughness. Hence by screwing small steel brackets to small steel strips very inconspicuous supports can be obtained at frequent short distances.

Museum cases must be opened from time to time for cleaning the glass and for the removal of some objects and installation of others. The easier this process, the more likelihood that the case will be kept clean and the installation up to date. The simplest means of ingress and egress to and from an enclosure is a door; moreover by swinging the door upon hinges its removal bodily at each ingress and egress may be avoided. Our first principle requires that this door shall be of glass and as large a piece of glass as is possible. Its movement upon hinges involves several difficulties, however. A slight framework cannot bear the weight of a large piece of glass if the glass in addition to its weight exerts a leverage so that the weight tends to tear the door from its hinges and at any rate cause constant sagging. Solution of the problem has been attempted by having the door slide, either vertically or laterally. Both of these devices has serious disadvantages, however. The upward sliding door requires heavy counter-weights which must be concealed in the framework, thus increasing its size, or in the rear of the case, where they are inaccessible. Moreover, large quantities of dust usually await their opportunity to enter the case whenever the door is raised. If the door is made to slide laterally on tracks, undesirable weight and mechanism are added and the area devoted to sash in front must be doubled in depth without any gain. If the doors fit loosely they admit dust; if they fit tightly they scrape against each other and often will not move at all. The solution of the problem is, I believe, to hinge the door at the top. The pull against the framework is not then seriously increased by the swinging of the glass and there is no sagging. Lights of plate glass six feet square and perhaps larger can be swung in this manner with perfect safety and when closed do not appear to be doors at all.

If our principle be accepted that it is not desirable to have cases in the central portions of a hall of full height, the question comes, how high they may be. Their lowest point can be easily determined to be such

that the objects in them can be viewed without painful dorsal and genual bendings. A height of from 18 to 30 inches from the floor may be adopted for this limit therefore. Beyond this the case may rise one, two, or three feet, but not higher, since a greater height would cut off observation of the hall as a whole. If the rise is but one foot above the base it is usual to have the top of the case parallel with the floor, thus producing what is generally known as a flat case. Such a case, however, consumes an amount of floor space equal to the amount of exhibition space, and the bending posture which the visitor is obliged to assume in order to examine its contents is wearisome. Moreover the objects are at varying distances from the eye, some near and some far away. A uniform distance from the eye could be secured by raising the height of the exhibition portion to three feet and employing a vertical installation, but in its simplest form it is obvious that such an arrangement is wasteful of space, since much of the interior of the case cannot be utilized. Some designers have thought to overcome this vacuity by combining horizontal and vertical installation in one case, *e. g.*, making the outer two feet of the case of the flat type and the inner vertical. I have not found such cases in practice especially serviceable, however, chiefly because the vertical portion of the case is too narrow and removed too far from the eye for easy observation. A case which does seem to me, however, to combine the advantages of both horizontal and vertical installation is one with sloping sides. Such cases are often known as A cases. These give for small objects the greatest amount of exhibition space to a given amount of floor space and bring the objects near the eye. The height of the exhibition portion of such cases has already been indicated to be not over three feet. Its length depends upon the size of the pieces of glass which can be readily made to swing. This length I regard as about five feet. As in the wall cases, installation in the floor cases can be accomplished by means of shelves or blocks on wooden backgrounds, adapted to the size and weight of the objects. Obviously not all material can be installed in such a case, but where suitable it seems to me advisable.

Having determined the proper dimensions of the exhibition portion of the case there remains to be decided what shall be done with the space between the exhibition portion and the ground. A frequent and perhaps the usual way of answering this question has been to place the exhibition portion of the case upon four slender legs; but for many classes of objects this support is not sufficient, and its appearance seems to have to be unsatisfactory psychologically. Moreover, I



GEOLOGICAL HALL IN THE FIELD MUSEUM OF NATURAL HISTORY, CHICAGO, ILL., SHOWING CASES CONSTRUCTED
ON THE PLAN ADVOCATED BY DR. FARRINGTON

can see no objection to utilizing this space for museum though not for exhibition purposes. I believe that it is sound practice to enclose this portion to form a solid and attractive base, the interior of which shall be fitted with drawers or trays, or left so that it can be entered for any purpose desired. I do not, however, regard it as desirable to carry this base to the floor all around, as is usually done. Anyone who will examine such cases that have been in use for several years will find them exhibiting an unsightly row of scars and discolorations for about four inches from the floor, where the toes of visitors have struck against them and the mops of janitors swashed them. Moreover, dust accumulates under such bases and cannot be removed without moving the entire case. All these difficulties may be overcome by removing this portion in the structure of the case except at four points of contact with the floor sufficiently large to give proper support. Such under-cutting has been somewhat criticised, but in practice I have never found it to have any bad features.

A considerable effort is usually made by designers of cases to prevent the entrance of dust. In fact it sometimes seems as if in the design of cases the only thing that had really been kept in mind was to prevent the entrance of dust; and as noted at the beginning, this could best be done by placing the objects in an iron safe. It also seems usually to be forgotten that most specimens will themselves in time produce more or less dust which must be removed at intervals. As a matter of fact a case built according to ordinary principles of cabinet work and by an ordinarily capable cabinet worker will usually admit less dust than would come from the specimens themselves. A simple tonguing and grooving of the movable portions of the framework and a covering of such tongues and grooves with felt will, if the workmanship of the case is good, prevent the entrance of any serious quantities of dust. The elaborate ventilating systems which are sometimes advocated I regard as generally unnecessary.

The question of the color of case interiors is an important one which may be properly considered in studying case design. White has the advantage of lighting the interior of the case. On account of such lighting, however, it does not form the most effective background, since relatively less light reaches the eye from the specimens themselves. Most white coloring matters that have been employed in the past also have a tendency to turn yellow, so that the case has become spotted after a few years. This it has been sought to obviate by employing a yellow color that is a cream at the beginning. The discoloration has, however, usually been due to the fact that a lead pigment has been employed

instead of a zinc or earth white. If these be used instead of white lead no serious change in color need occur. Black for case interiors has the advantage of absorbing all extraneous light except that from the specimens themselves. The specimens therefore stand out, as we say, more distinctly and impressively. This will be found to be true even for dark specimens, and there is no specimen which, I believe, will not stand out well upon a black background. The effect is, however, it may be noted, better obtained by the use of a "flat" than of a shiny black. One disadvantage of a black interior is that, especially when plate glass is employed, the glass becomes a mirror in which the visitor can see himself or herself if desired. The problem then presented is a purely psychological one, however, the question being whether the visitors shall study themselves or the specimens in the cases. I do not consider this a problem which the curator is called upon to solve. Between white and black various colors of the spectrum have been employed for case interiors and have been advocated from time to time more or less warmly by their adherents. Green has been urged on account of its well-known softness to the eye. Some museums are convinced that light blue or gray is the only proper color, and one great museum of this country for a time used maroon extensively. To my own mind, however, all colors have the disadvantage of setting up their own hue as a rival to that of the specimens, causing contrast and often conflict. If to the colored background be added labels of a different color, there are obtained three color effects, which are distracting, to say the least.

Having established some principles regarding the material of cases, their shape, size and color, there remains to be considered the appearance of the case itself. Shall this be made ornamental, or not? Without doubt the ornamentation of museum cases has often been carried too far, so that the case has been more impressive than the objects which it contained. On the other hand the case need not be so plain as to be ugly. Further elucidation of this problem I shall, however, leave to our members of the art section, it being one of the happy features of this Association that its membership includes those able to deal with problems from the standpoint of art as well as of science.

Mr. F. A. Lucas (Brooklyn Institute Museum).—"I have enjoyed this paper very much because Mr. Farrington and myself have been working along parallel lines. I quite agree with his last statement that a case has some function other than to preserve its contents, especially a large case.

It should not only frame its contents but should itself be pleasing to look at. We are trying to abolish shelves. I have two or three cases now without shelves. We are also trying to abolish mahogany cases, and if I live long enough we will have abolished almost all of them in the Brooklyn Museum.

"The color of the case is very important. I like very much the color of the oak cases in the hall above in this building, and I think that will be the color we shall adopt in our new cases. The color of the book cases will be oak, either stained dark or with a mission finish, almost black. For art cases a polished ebony is about as good as can be had, although I have found it rather funereal in the Drexel Institute.

"Another point is this, that no architect has yet designed a thoroughly satisfactory table leg. I am very much pleased with the table legs in the Art Institute here, so much so that I am going to copy them."

Mr. Henry L. Ward (Milwaukee Public Museum).—"The case problem is a very serious one for museums, and I followed with considerable interest what Dr. Farrington had been doing at the Field Museum. Some time since, I looked over the question of cases rather carefully and I think he somewhat underestimates the size of glass that can be successfully swung from above. Some four years ago I had certain cases made for the exhibition of guns. These cases were over ten feet in length, and some seven and a half feet in height, and while it was something of a problem with me as to whether I could swing such a large plate of glass successfully or not, in talking with a case builder we concluded that we had a good chance of being able to do it. We used heavy glass, an inch and three-eighths to an inch and a half in thickness, and it has worked successfully for the past four or five years, and given very good results.

"I have considered the interior color a great deal, and have come to the conclusion that black for certain objects, such as coral, and a cream color for almost everything else is very satisfactory. We are trying to do away with shelves, which seem very offensive. Dr. Farrington's idea of breaking the shelves up into very small ones is a very excellent idea, but we intend, as far as possible, to abolish shelves in such exhibits as birds. We have a style of bracket which will be practically invisible, and will enable us to mount the birds just where they will most properly come and break up the row arrangement, which certainly is very inartistic."

Mr. F. C. Baker (Academy of Sciences, Chicago).—"There is one thing that has struck me very forcibly in regard to cases while visiting other

museums during the last few years. You will see one visitor looking at a case and he will be stooped down this way and then you will see another one stretching up this way (*indicating*). Some of the labels and exhibits may be eight or nine feet high and the visitor needs a stepladder or a pair of glasses in order to study them. In other cases the exhibit is too low, and this is inconvenient and bothers a visitor very much. In my judgment we should always bear in mind in case construction and the placing of exhibits, that they should be so exhibited as to be not very much above the line of vision."

Secretary Rea.—"As I am about to build some cases, I would like to ask three things; in the first place, whether a solid baseboard with a slate kicking plate, is worth while."

Mr. Lucas.—"Yes."

Dr. Farrington.—"None at all is better."

Secretary Rea.—"How do you sweep underneath the case if you cut out under it as you describe?"

Dr. Farrington.—"By cutting out four inches it is perfectly easy to sweep under it."

Secretary Rea.—"How deep should wall cases be built where the permanent use of the case cannot be told in advance?"

Mr. Lucas.—"About 24 to 28 inches inside."

Secretary Rea.—"And if you use small specimens, bring them forward?"

Mr. Lucas.—"Yes."

Mr. Ward.—"I am up against the same proposition myself, having let a contract to a case builder for some cases just before I left Milwaukee. I might say that I design my own cases because we have too artistic an architect. I am putting certain cases in a room from which I feel confident that the entire contents will be removed. Consequently, I cannot predict just what those cases will be used for. I have made one wall case 20 inches deep and another 15 inches deep. I have made wall cases only five and a half inches in depth for certain exhibits which I knew would be permanent. My idea is that the nearer the glass can be to the background the better. Even half an inch in a case makes a lot of difference. I cannot quite find out why, but it does."

"Regarding baseboards, I am going to put Tennessee marble on the bases of my cases. I know that Doctor Farrington's cases look well, but I think that the others look better as far as coming down to the floor is concerned. At any rate, I have inherited a great lot of cases and they all come to the floor, so that I am more or less tied by precedent."

Secretary Rea.—"Does the marble stand the floor oil that is used on a wooden floor?"

Mr. Ward.—"I think not, but I have cut out the floor oil. We used to use it, and people complained that the air in the museum was very bad. This was partly due to insufficient ventilation, and partly due, I feel sure, to the oiled floor. We also had complaints every once in a while that some lady had ruined her dress by coming in contact with the oil on the floor, and so we have done away with it."

Secretary Rea.—"My third question is this: In a large hall, 150 feet long and 90 feet wide, lighted from above by skylights, would you put glass tops on the wall cases? Will there be enough light coming in from the sides to light the case, or would you put on a glass top in order to secure a diffusion of light from above?"

Mr. Ward.—"I experimented on that point. Our old cases all had glass tops, and to satisfy myself whether there was any value in them or not, I had one of my men put a board on top of one of those cases, removed perhaps 15 feet from a large side window, extending 8 or 10 feet higher than the top of the case. That board entirely shut out the light coming through the top of the case, and yet I couldn't see the slightest difference in the illumination of the back of the case, and when I had the board moved around there was no perceptible shadow following it at all, so I immediately put in the specifications that the tops of the next cases should be wood."

Mr. F. A. Lucas.—"My own experience is exactly like that of Mr. Ward and the cases we are now building have wooden tops."

After some further discussion, participated in by Messrs. Miner, Jennings, Rea, Emerson, Lucas and Farrington, the reading of papers was again resumed, Mr. Toothaker presenting the following:

FUMIGATION

The preservation of the materials placed in his care is one of the most important duties of a museum curator. He is expected to see that neither moth nor rust doth corrupt and thieves do not break through nor steal.

Specimens are of such varied character and the materials in a museum are of so many different kinds that the problem of their preservation is one that calls for many devices. Among the enemies to be combatted are insects, mice, dust, natural decay, heat, cold, and dampness.

In many instances the insect enemies are the most troublesome. Moths of various kinds attack all articles of wool; they eat skins, horns, and almost everything else of animal origin.

Both moths and weevils attack grains and seeds. The drug store beetle is an almost ever-present curse against which nothing seems proof, for he has often been known to go through tin foil to reach the object of his desire. Wood boring insects add to the curator's difficulties and not infrequently destroy valuable specimens.

To rid a museum of all these pests and then to keep them out is not easy, and in The Philadelphia Museums we have had perhaps more trouble than has been experienced in many other places.

At various times we have received material from expositions and have had shipments sent us from foreign countries. The bulk of this material has been very large and it has often in the past been difficult to handle promptly. The specimens have been of practically all kinds and have not infrequently been infested by insects when received from abroad. To add to our difficulties, many of our glass cases had been given us and, like some very cheap ones which we had built, they were not insect proof. We used naphthaline in large amounts only to become convinced that while it may keep out most of the insects from material free from infestation, it will do little toward driving away those which are already present. We stored with tar paper, sprayed with turpentine, poisoned with arsenic and with corrosive sublimate solution, and resorted to all other means which are commonly supposed to make the neighborhood unpleasant to members of the insect tribe. We had a fumigating box as large as a small room. From time to time we dismantled cases, placed the specimens in the box and fumigated with bisulphide of carbon. We used this same fumigant in the few comparatively airtight cases which we at that time possessed.

Bisulphide is, however, objectionable on account of the dangerous explosive quality of the heavy gas and we always felt a hesitancy in using it in the building, knowing that some at least of our cases would leak.

About four years ago we began using hydrocyanic acid gas for fumigating and this agent seems to us to have many points of superiority over anything else we know.

1. It kills all living insects (except that it has practically no effect on wood borers, probably because it does not penetrate to them).
2. Its action is more rapid than that of either bisulphide of carbon, chloroform or any other agent we have tried.

3. It does no harm to specimens except to living plants, even when used in very strong doses.

4. Being a light gas it rises from the floor and within a few minutes thoroughly permeates all parts of a case.

5. On account of its lightness, it is easily gotten rid of and a case is safe to enter within a few minutes after the door is opened.

6. It is not explosive nor inflammable.

7. While it is dangerous to human life if breathed, its peculiar smell is quickly recognized and serves as a warning of danger.

8. Fumigation can be done thoroughly, and so quickly that there is no necessity for having dangerous gases about the Museum at a time when visitors are present.

9. The action of the gas is so rapid that even if cases be not airtight, all insects can be killed without difficulty.

10. The process is cheap.

Hydrocyanic acid gas has been used to some extent for a few years past to fumigate residences in order to kill household pests, to fumigate orchards to rid fruit trees of San José scale, and in hothouses.

When applying the gas to living plants it must be used carefully, for if the application be too strong, tender plants will be killed. In fumigating museum cases it is perfectly safe to use it in very strong form, and it is best to do so in order to make sure that it will penetrate all parts of the case, and in order to make certain of killing all insects.

Soft-bodied animals, like worms and moths, die more quickly than hard-bodied beetles, and for the latter it is especially desirable to use the gas in strong doses.

In fumigating, we place in the case, first, a deep earthen jar containing a mixture of two parts of water and one part of sulphuric acid. This should be placed near the door on a piece of board and it is safest to protect the things nearest to it by hanging up newspapers or otherwise screening the jar so that in case it bubbles vigorously the sulphuric acid will do no damage. Into this jar we then drop a piece of paper containing some coarsely ground potassium cyanide and quickly close the case. Most of the cyanide should be in lumps not over half or three quarters of an inch in diameter, and such coarse material is rather better than very fine powder since the chemical action is then not too rapid and the jar does not boil over. The amount of cyanide should of course be proportioned to the amount of acid used, this depending on the purity of both ingredients. Using sulphuric acid and cyanide of potassium (both C. P.) we employ 25 grammes of cyanide to 25 cubic centimeters of

sulphuric acid, and 50 cubic centimeters of water. This amount of material is used to every 100 cubic feet of air space.

Hydrocyanic acid gas has proved superior to other fumigants in our work in the greater speed and certainty with which it kills. We have made comparative tests with cyanide and other gases and the following statement of results will probably be of interest.

In a storage case containing 800 cubic feet of space, we had stored about 150 fleeces of wool, each in a separate muslin bag. We placed in a corner of this case a bag of wool containing several hundred live wool moths and worms which had been raised for this experiment. The case was fumigated by heating solidified formaldehyde over an alcohol lamp and we used more formaldehyde than the makers of this preparation recommended for what they claimed to be thorough disinfection and killing of all microbes. After twenty-four hours the case was aired off. The bag containing insects was opened and the contents spread out. The worms appeared to be dead, but in the course of an hour many of them were crawling about, showing that life was not really extinct.

Another case as nearly as possible the duplicate of this was prepared and another bag containing fresh worms and moths were placed in similar position. This case was treated with cyanide and the dose was made a little weaker than we ordinarily employ. After eighteen hours the case was opened and the contents of the bag was spread out in the fresh air. Not one worm or moth came back to life, although they were watched for twenty-four hours.

We have experimented with burning sulphur in cases, but this was not successful on account of a deposit of sulphur forming on the glass of the case and on account of the effect of the gas on colors and on metals.

For several years we have not used bisulphide of carbon on a large scale. Neither this agent nor chloroform seems to have great penetration. A two-quart bottle of flour containing live larvæ, closed with a ground glass stopper, was treated with fifteen drops of bisulphide, and another bottle with fifteen drops of chloroform. Twenty-four hours afterwards the bottles were emptied out and some of the larvæ were found to be still living. A similar bottle of flour containing larvæ was exposed without stopper in a storage case for twenty-four hours to the action of hydrocyanic acid gas and no live larvæ were found.

Living flies, spiders, roaches, grasshoppers, grain moths and wool moths were placed in a case containing 800 cubic feet of space, fumigated with 8 ounces of cyanide of potassium and a proportionate amount of acid. It evidently took several minutes for the gas to reach the insects

which were at the end of the case farthest from the jar. The spiders, flies and moths were all apparently dead in five minutes from the time the case door was closed and the roaches and grasshoppers lasted not half a minute longer. The case was opened two hours later and the insects given fresh air, but none of them came to life.

Live wool moths and worms were wrapped up in a heavy blanket. After exposure for several days in a small case containing an open vessel of bisulphide a few of the worms showed signs of life. A similar test made in a case with cyanide fumigant resulted in the death of all the worms.

Since beginning to use hydrocyanic acid gas we have had practically no injury from insects, but I attribute this simply to watchfulness and fumigating at the proper time and am not ready to state that the gas does any harm to insect eggs. So far as I know these can only be killed by heat or by the direct application of some liquid such as dilute corrosive sublimate solution.

For wood-boring insects the only really effective remedy we have tried is immersion of the article in gasoline. This usually does no harm, although it injures wood to the extent that it removes some of the soluble matter, slightly changing the composition and rendering it more brittle. This of course spoils specimens for strength tests and scientific purposes, but the gasoline bath saves wooden carvings, idols and similar specimens from destruction.

Secretary Rea.—"How much time do you allow to close the case and get out of the way?"

Mr. C. R. Toothaker (Philadelphia Museums).—"Why, I suppose it does not take ordinarily more than five seconds to close the case and get out of the way."

Secretary Rea.—"Well, you stop to screw up half a dozen nuts, don't you?"

Mr. Toothaker.—"In a case of that kind, one man drops the little paper bag into the jar, and turns and reaches for the edge of the sash, and another man has hold of the other edge of the sash and it is pulled in place and closed within ten seconds."

Mr. Charles C. Adams (University of Chicago).—"I have had some experience with this fumigation in a nursery, where they build a shed large enough to drive a wagon in, and cover the trees or shrubs that are on the wagon, and treat them with this process. I think that method

could be applied to museums, where the cases could be taken into a room arranged in the way described."

Mr. Henry L. Ward (Milwaukee Public Museum).—"I would like to ask whether this process is deleterious to any museum material, whether it has any bad effects on metal or anything of that sort."

Dr. A. E. Ortmann (Carnegie Museum, Pittsburg).—"None at all. It is recommended for fumigating, by the State of Pennsylvania. It is very easy with this method to begin at the top floor of a museum and go down through the different rooms on the different floors with your little paper bag and glass jar, and there is no danger whatever."

Mr. Toothaker.—"I have not observed the slightest damage, not even a sign of tarnish or any deleterious effect on textiles of many colors."

Mr. Ward.—"In a recent edition of the *Museums Kunde*, there is a description of a plant in Europe for the use of bisulphide. There is a large retort into which runs a truck on rails carrying large or small objects. Then by the vacuum process the air is abstracted, and the bisulphide is introduced for the purpose of fumigation. There is also some arrangement for taking off the gas afterwards before the things are taken out."

Mr. Roy W. Miner (American Museum of Natural History, New York).—"In the American Museum we have a series of fireproof storerooms up under the roof. The offices are on the top floor and above that, on the slope of the roof, there is a fireproof gallery. Along that gallery is a series of fireproof vaults with fireproof doors, the sills of which are about eight inches from the gallery outside. They are entirely floored with concrete and the walls are of concrete. The doors to these vaults have a latch arrangement similar to that you often see in a butcher shop, or in a cold storage plant, which closes the door very effectively. At the upper and lower portions of the door there is a circular hole about three inches in diameter and into that hole can be introduced any fumigating substance that seems desirable. We found that that method works very satisfactorily."

Dr. W. P. Wilson (Philadelphia Museums).—"I have a little place where I am cultivating fruit trees of various kinds and I have found that the ordinary lime, salt and sulphur solution, which has been recommended by a great many people, does not kill the scales. I have trimmed my trees very closely in the top, so that they are not over 20 feet high, and I have constructed a tent about 10 feet wide at the top and about 25 feet high, with an opening on one side so that it can be taken up by two men and thrown right over one of these trees. It is made of heavy canvas,

dipped in hot paraffine. I find that it holds the gas perfectly and I fumigate my trees in this way with hydrocyanic acid gas and find that it is perfectly successful. It cleans absolutely every living thing off the tree and does nothing to injure it."

Before taking up the next paper, a cordial invitation was extended to the members of the Association by Mr. Henry L. Ward, director of the Public Museum of Milwaukee, to visit the city of Milwaukee and inspect its museum, and other institutions, before returning to their homes.

President French then called for the following paper, which was submitted by Mr. Robert Koehler of Minneapolis:

SOME IDEAS ON THE FOUNDING OF AN ART MUSEUM

When your president extended to me an invitation to attend your present meeting and, if possible, to read a paper or lead a discussion, I felt not only highly complimented, but also deeply grieved that I am not yet really a museum director. My first impulse therefore was to gratefully decline the invitation and then vigorously to continue my efforts to aid in the establishment of not only one, but of two art museums: one for Minneapolis, the other for the State Art Society. Whether I should ever really become the director of either may be uncertain; at all events I deem it wise to "be in training" and ready to assume the duties whenever called upon to do so.

This consideration finally induced me to accept Director French's invitation, for I could think of no better opportunity to increase what knowledge and qualifications I may possess for the office than a free discussion of ideas with practical men.

The very small beginnings towards the establishment of an art museum in Minneapolis, for which I may as well assume the greater share of responsibility, consist of a few pictures acquired primarily by way of encouraging our noted American artists to send works of high artistic value to our periodical exhibitions, which we arrange for the purpose of stimulating an art interest in our community. We fondly hope that the realization of our plan to erect an art museum building is not far distant; for the necessity becomes more apparent from year to year—nay, from month to month. The quarters allowed us in the public library building are insufficient to accomodate our art school, while the possibility of holding exhibitions depends upon the good nature of our students

who must give up some of their class rooms from time to time for this purpose.

There is no mistaking the development of a healthy art interest in our community. It has grown so rapidly within a few years, that the demand for the best and newest in art could hardly be exceeded in older communities; and still it is not long since the study of art has been elevated from a mere fad to a fundamental principle in education; and while such recognition is as yet by no means quite general, we have at least passed that danger point in our public school system where any change in the organization of the school board might threaten to eliminate or even to seriously hamper that branch of study. Indeed, the tendency is rather in the other direction; and if any radical change is ever attempted, it will be to further emphasize the importance of art study, making it more practical, more directly applicable to the needs of our every-day life.

For generations the idea has obtained almost universally that art is something apart from our needs, is a luxury for only the wealthy to indulge in, since it consisted solely in costly treasures, carefully stowed away in museums, mayhap, where you could for a cash consideration gain an occasional glimpse of rare masterpieces, of whose true value you hadn't the slightest appreciation.

As long as a severe line was drawn between the so-called "fine arts," and the art-crafts, to which latter the very term, art, was only reluctantly applied, it was perfectly natural that the study of art failed to commend itself to the public in general. Of course such a line cannot be entirely eliminated, for a distinction between the two will always exist; but we now recognize that it is rather a distinction of degrees than of kind, and that the difference between a painter and a silversmith might just as easily be in favor of the latter when the purely artistic value of their products is compared.

I am aware that even now this view is not universally accepted by our brotherhood, but it is certainly gaining ground and will undoubtedly prevail in the end. A cursory glance at conditions prevailing but fifteen years ago will help to make this clear.

Mr. Ives, director of the Art Department of the World's Columbian Exposition, had invited the craft-workers to make their work a part of the art exhibit, and the only acceptable response made was by the Rookwood Pottery of Cincinnati. This was either because the craft-workers generally hesitated to class themselves among the artists, or they doubted that full justice would be accorded them by an artists' jury of selection—or for both reasons. But eleven years later a great change

had taken place: at the World's Fair in St. Louis the broader view had triumphed, the imaginary line of demarcation between the art-craft and the fine arts had disappeared.

And this is a matter of greatest significance in the establishment of an art museum today. In the past quite generally—and with a large majority of people even now—a museum is merely a show-room, a point of attraction to the casual and the professional sightseer, visited not so much with the object of obtaining or increasing knowledge, but rather to satisfy curiosity, and, opportunity offering, to demonstrate appreciation of art by critical remarks.

All the old world art museums of renown are strictly classified as “art galleries” and as “museums” for the industrial arts or handicrafts. In art galleries no attempt is ever made to demonstrate the independence of the arts and the crafts; endless walls are hung with countless pictures, arranged, where feasible, in chronological order, it is true, but still mostly without the slightest regard for their original purpose, even where this had been a very definite one.

Museum directors take pride in “completing” their collection of the works of certain masters or schools and proudly hang their new acquisition on the wall, even though it had originally been designed for a ceiling. Pictures are taken from their original frames, often designed by the artists themselves, and supplied with a “more modern” setting, while the old frame goes into a junk shop where perchance it is discovered by the director of an “Industrial Arts Museum” and highly prized as a rare find.

It is not likely that European art galleries will undergo any radical change in the near future. They will remain vast store houses of pictures by the old or the new masters and will continue to constitute the chief points of interest to many thousands of travelers and students. They have well-nigh captured all of the works by the old masters that are worth having or at all obtainable, and when an American institution attempts to form a collection of old masters, it must be in the main content with inferior works, and make most of them appear as far more valuable than they really are, thus cultivating a false standard for such of our art lovers as are unable to visit the European collections.

But the scarcity of old masters need not prevent us from having fine art museums, institutions of the greatest educational value. In fact, such scarcity might be called blessed since it will compel us to arrange our museums on an entirely different plan, more readily destined to serve a practical purpose in our communities than would any necessarily weak copy of the famous old galleries of Europe.

The opinions I have arrived at may not have as much value as I fondly hope; they may not appeal to the directors of existing institutions in the older cities. But I consider them applicable in the newer communities, where the desire to have museums of their own has obtained firm footing and where the means available preclude the possibility of duplicating the Louvre or the National Gallery.

Being a firm believer in American Art, and considering its best examples as more worthy of a permanent place in public galleries than many spurious and indifferent examples of past ages that have already found their way into some of our collections, I would advocate the acquisition of the best modern and early American works obtainable; not only pictures and works of sculpture, but also the choicest examples of handicraft as well. These I should place in various rooms in such a way as to form integral parts of the general arrangement, every portion of which, from floor covering to wall paper, all furniture and all structural parts of the rooms, to be of artistic design and workmanship. There would be living rooms, libraries and dining rooms, some simple and inexpensive in their appointments, others more luxurious. There would also be larger rooms with skylights to serve as art galleries proper; but the walls would not be covered with pictures closely hung; cabinets and chests, chairs, screens and other objects would be assigned their proper places and thus continue to fill places for which they were originally destined.

Such a scheme will serve two important purposes: not only will it be to the living the most practical means of consulting a high standard for their own endeavors, but the generations following upon our own will have a reliable picture of the art of our present period without being obliged to reconstruct the same from scattered fragments.

The most vital interest of the living is in the living, or ought to be. That being satisfied or not satisfied, as the case may be, we turn to the past to see how other generations and other people in foreign countries have lived, and your museum will grow to meet the demand. The few old masters you may be able to obtain can be placed to good advantage in rooms patterned after the style of their time, with original furniture, hangings, etc., whenever possible.

One gallery I should also have where photographic and other copies of famous old masterpieces, arranged in chronological order, may be seen and examined by all who are sufficiently interested in the study of art or art history.

There should be a sculpture gallery, containing all the famous statues,

busts, reliefs, that can be obtained in good plaster reproductions—and there should be no fig leaves.

The great architectural monuments of all times and all nations should be represented by plaster or wood models, made to scale, as well as by photographs, showing their setting.

In fact, whenever originals are not available, good copies should take their place. Good old originals are becoming scarcer every day and the number of imitations in pictures, sculptures and craftwork which have found their way into private and public collections, is notoriously great. Not only our own but European museums as well have been so frequently victimized, that the museum authorities have been obliged to form a sort of protective association to guard themselves against clever swindlers. While this is not necessarily a strong argument, it may be taken for what it is worth in pleading for the preference of frank copies to doubtful originals.

A reference library I consider an indispensable adjunct of the new museum; such library to be for the convenience of the serious student and in no way detracting from the free use of a public library.

Admission to the collections of the museum should be free at all times during the day and it should also be kept open on some evenings every week.

There should also be rooms in which periodical exhibitions can be held, so as to keep constantly in touch with what is going on in the art world, and finally, such a museum should also maintain an art school, in which all the branches of art, as well as the handicrafts are taught.

And one of the most important provisions, one that would tend to produce the most practical results, is the establishment of free lecture courses, illustrated by the objects in the museum. I say advisedly "illustrated by" and not merely "descriptive of" the objects contained in the museum, since the latter would necessarily result in rather incomplete information, and consequently be of little educational value.

I believe that in this manner even a small, but good, collection can be made of far greater importance than the most elaborate cataloging or the most extensive labeling could ever be. The spoken word is of immeasurably greater value than the most erudite printed treatise can be to him who comes to see things and wishes to learn their significance.

Now the question naturally arises: Is such a plan at all feasible? That depends altogether on conditions, certainly. There is probably no community ready to set up such a museum at once. But that is not the idea. The idea is, that every community contemplating the building of

a museum should start in such a way as to make its gradual development along these lines possible, without having to discard entirely its first beginnings and make an entirely new start every decade or two.

Allow me to sketch briefly how the problem should be attacked.

I take it for granted that all the preliminary educational work, which was necessary to awaken interest and stimulate a strong desire to start the movement, has been successfully accomplished. The first requisite then becomes the selection of a proper site. All practical business men will suggest that it be "centrally located," easily accessible from all parts of town. This, however, at once implies a temporary location, an unavoidable removal as soon as the business interests of the city expand. The proper location, ideal and practical at the same time, would be in some city park of sufficient size to permit of expansion without entirely destroying the original purpose of the park as a breathing place and pleasure ground.

It goes without saying that an art museum should in itself be an artistic and monumental building when completed. But it does not follow that it should be built of the costliest material or that it should present an imposing facade before it can be allowed to serve its real purpose.

The most pressing needs may not be identical in different communities; in one place they may be found in a picture gallery, in another the housing of some important collection other than paintings, in another proper accommodation for an art school. Whatever they may be, they should be met at the outset; that is, such part or parts of the general plan specifically designed for the accommodation most urgently required should be built first, while further additions may be made whenever the necessity arises and funds become available. The beginning will therefore probably consist of a group of buildings, perhaps with temporary connections, perhaps entirely isolated (which would be less desirable). Ultimately these buildings will form parts of the entire structure as originally designed, and it would be a slow community indeed that would allow very many years to pass before bringing this about.

I know of one city at least where they refused to make a beginning about ten years ago, because the money offered them was not enough to erect a palace. The consequence was the withdrawal of the offer, and the failure to make a beginning to this day.

In another city no provision for expansion was made, and valuable gifts offered had to be declined for want of space.

► If a city desires to have such an institution it should be willing to pay for its maintenance as a matter of course. In fact it is an extension of

the educational system which every city supports at present. It is more far-reaching in its effects, since it offers educational facilities to adults as well as to the children attending school; offers inspiration, not only to the artist, but to every artisan; broadens the views of every professional and business man and makes life richer for every one.

Mr. Frank C. Baker (Academy of Sciences, Chicago).—"There is one thing which appeals to me in this paper and which is exemplified in this institution. This institution is free seven days in the week, its lectures are all free and even its check room is free, all the checking for the public being done without charge. In fact, it seems to me sometimes that we have gone almost to the other extreme. It has, however, always appealed to me that a public museum, partly or wholly supported by public money, should be free."

A recess was here taken until 2:30 P.M.

SESSION OF THURSDAY, MAY 7

Afternoon

The closing session of the Convention was called to order by President French, at 2:30 o'clock.

Secretary Rea then read the following resolutions, which were adopted by a unanimous rising vote:

RESOLUTIONS

Resolved, That the sincere thanks of the American Association of Museums are hereby tendered the trustees and officers of the Art Institute of Chicago, the Field Museum of Natural History, and the Chicago Academy of Sciences, for their generous hospitality and many courtesies tendered the visiting members.

Resolved, That the thanks of the American Association of Museums are hereby tendered the trustees and officers of the Historical Society and the Crerar Library for the courtesies extended to the members of the Association.

Resolved, That the thanks of the American Association of Museums are hereby tendered the Management of the Auditorium Hotel for courtesy in reducing rates for the members of the Association.

Resolved, That the thanks of the American Association of Museums are hereby tendered Mr. Milward Adams, Manager of the Auditorium Theater, for his courtesy in inviting the members of the Association to enjoy an evening of recreation in his theater.

Resolved, That the thanks of the American Association of Museums are hereby extended to the following persons who so courteously tendered the use of their automobiles to the Association during its Chicago meeting: Mrs. Marshall Field and Messrs. Charles L. Hutchinson, LaVerne W. Noyes, E. C. Logan, A. A. Sprague, J. J. Clessner, A. C. Bartlett, C. H. McCormick, Harold McCormick, John Farson, J. F. Foster, Charles Dickinson, Watson F. Blair, Richard T. Crane, Jr., George F. Porter, W. W. Keith, Arthur Meeker, J. J. Glessner, John Talbot, James Simpson, Kenneth Barnhart, Stanley Field.

The following subject was then discussed by the members, the discussion being opened by Doctor W. P. Wilson, director of the Philadelphia Museums:

DISCUSSION OF THE ADVISABILITY OF ESTABLISHING A PERMANENT EXHIBIT OF MUSEUM BUILDINGS, FITTINGS AND APPOINTMENTS

Dr. Wilson.—"I will take but five minutes in opening the discussion which is intended to determine whether it is desirable to bring together in some manner, in some one place, a museums of museums, a place where, as far as possible, the literature of museums and the catalogues, that have been published by museums may be found, together with descriptions of museums, plans and blue prints and photographs of both the exterior and interior. More benefit could be derived from an examination of these plans and methods of museum operation than by going to all the museums and seeing the things personally. The object of such an undertaking would be to have a place where the plans would be sufficiently developed to show methods of lighting, arranging cases, and installing exhibits in museums; where there should be brought together an exhibit of cases and models sufficient to show how they are adapted to museum purposes.

"I think any museum which has some advanced method of building cases would be very glad to make a model and show such things fully

enough so that anyone studying the models could get an idea of the method of construction.

"There is also the matter of labels and preservation of specimens and everything of that kind which could be brought together to exhibit museum methods. It is simply a question of whether it would pay to bring that sort of thing together in one place where it would be attractive for persons to come and study it and where they could see, for instance, the plans of the museums in Paris or the New National Museum of the German Empire in Munich, or any other great museum in Europe or the United States. It seems to me that an idea of this kind could be carried out and that there would be no difficulty in finding a museum which would be willing to give the time and space to take care of these things and install them. If there is a desire on the part of this organization to send in material and then, as far as possible, to secure the same material from museums both in Europe and in this country who do not belong to the organization, I have no doubt but that it can be brought about and I will guarantee that such exhibits will be taken care of if they are gotten together in such shape that they can be catalogued and placed on exhibition ready for whoever may come to see them."

Mr. Frank C. Baker (Academy of Sciences, Chicago).—"I would like to put this matter in concrete form, and to do that I present the following resolution: **RESOLVED**, that the American Association of Museums deems it advisable to start a museum of museums, and that each member present representing a museum be urged to send in plans of that museum as extensive as possible to Dr. Wilson, and that the Philadelphia Museums be the designated place to exhibit this collection."

Secretary Rea.—"I take pleasure in seconding Mr. Baker's resolution. I think we ought to be very much indebted to Dr. Wilson for assuming the management of this work, and I do not know of any institution so well adapted to maintain this exhibit as the Philadelphia Museums. It is centrally located, it is doing work which brings it into correspondence with a large part of the world, and I believe we shall find this exhibit of extreme value as the years go by."

Mr. Baker.—"I might add one thing to my resolution, and that is that a circular be prepared by Dr. Wilson and sent to all the museums in the world, requesting them to send in plans illustrating their methods."

After some further discussion, the question was called for and being put to a vote, Mr. Baker's resolution was unanimously adopted.

Dr. Wilson.—"I wish to appeal to every person here to send me at once material and labels in duplicate sets. If a museum anywhere

wishes to see sets of labels and I have them in my possession from forty museums I will send them out and pay the expenses of sending them, and then they can be returned to me. I will take charge of that sort of thing, or any other samples you may send, and I hope you will be active in sending in everything you have, good, bad, and indifferent, two samples of everything you forward me."

Dr. Oliver C. Farrington, Curator of Geology, Field Museum of Natural History, then presented the following paper:

THE GEOLOGICAL COLLECTIONS OF THE FIELD MUSEUM OF NATURAL HISTORY

The geological collections of the Field Museum of Natural History represent the earnest effort of fourteen years to gather material having both scientific value and popular interest. Some account of progress made and information gained in this work during this period may be of value.

The collections had their origin largely in material obtained from the World's Columbian Exposition and were chiefly from two sources; one, the geological portion of the natural history collection prepared by Ward's Natural Science Establishment, and the other, donations made by exhibitors in the Department of Mines and Metallurgy. An economic and systematic division of the collections was thus indicated by the two sources of origin, and this has been maintained to a greater or less degree in the subsequent development of the collections. The material obtained in 1894 was assigned to the west wing of the present museum building and filled 21 halls. The distribution adopted at that time was the following: Paleontological collections, three halls; relief and other maps, two halls; meteorites, one hall; minerals, two halls; structural geology, one hall; lithology, one hall; marbles and building stones, two halls; coal, two halls; petroleum, one hall; ores of the precious metals, one hall; ores of the base metals, two halls; clays, one hall; metallurgy of iron, one hall; and non-metallic minerals, one hall. The paleontological collections numbered about 10,000 specimens; meteorites 180; minerals 5000; structural geology 500; lithological specimens 1500; and the economic collections as a whole about 20,000 specimens.

The cases available for the collections at the opening of the Museum were largely obtained from the Exposition and, it may be said, were not intended for permanent use.

The systematic collections at the beginning were as a whole extensive and comprehensive. The paleontological collections were especially strong in Silurian invertebrates, European ichthyosaurs, Solenhofen fossils and French Tertiary invertebrates. The collections contained, however, numbers of casts which while theoretically instructive have practically been found to have an unfavorable effect upon the average museum visitor. The satisfaction which the visitor feels in being confident that he is seeing a real article seems to outweigh any instruction which he might derive from looking at a cast. Accordingly the casts have been largely eliminated and genuine specimens supplied wherever possible.

The chief additions which have been made to the paleontological collections have been American vertebrate fossils, there being none of these of importance in the collection at the time it was started. Representative specimens of the wonderful extinct reptilian and mammalian faunas for which our country is justly famous are now possessed, the material having been obtained chiefly by a series of expeditions to South Dakota, Montana and Colorado. This material is found to possess not only scientific interest and value but also as a rule an interest for the average visitor. Considerable material new to science has been obtained in the course of these explorations and the collection includes many types. An especially important specimen is the great Dinosaur skeleton now being erected, which was obtained in Colorado in 1901. Not only is this one of the largest individual Dinosaurs ever discovered, but it contains more bones of a single individual than any such Dinosaur yet mounted. Moreover from the completeness of the vertebral column a correct conception of the proportions of these animals was obtained for the first time, previous reconstructions having been based on incomplete vertebral columns and the animal made too long. Other especially important specimens are the huge skull of Triceratops or great horned lizard which was obtained in Montana in 1904 and which is the largest skull of this genus known; portions of the skeleton of an extraordinary giraffe-like Dinosaur, one bone of which is the largest known to science; and the most complete skeleton known of a genus of Pterosaurs or flying lizards. Considerable additions to the series of invertebrate fossils have been made by field collecting, purchase and exchange. Among these the Devonian invertebrates, Burlington crinoids and Silurian sponges are of especial importance. The local fossil fields have also been extensively explored and numerous new forms discovered.

The collection of meteorites, which contained representatives of 180

falls at the beginning, has been increased so that one-half of the total number in the world, or 300 falls, are now represented. Several of these falls, such as Long Island, Brenham, Forest City, Saline and Kenton County, have their largest representation here and the specimens are of priceless value. This collection has always been one that has attracted much popular interest.

The collection of minerals was at the beginning fairly representative of the different mineral species and localities though some important ones were not illustrated. Especially satisfactory series were those of sulphur from Sicily, fluorite from England, agate from Uruguay, calcite from England, topaz from Russia, apatite from Canada and barite from England. The collection has been continually increased by field work exchange and purchase, so that it is now more than double its size at first and most of the mineral species and localities of the world are represented. An especially important addition was obtained by acquisition of the collection of Maynard Bixby of Salt Lake City. This comprised 2400 specimens, chiefly from little known mining districts of the West and afforded a considerable quantity of material not represented in any other collection. Public interest in the mineral collection as a whole may be said to gravitate chiefly to the gem stones, but systematic studies of the collection are made by classes from the public schools and universities and prove its instructiveness beyond a doubt.

The collection illustrating structural geology possessed at the beginning remarkable specimens in the way of large slabs of ripple marks, large concretions, septaria, glaciated surfaces, basalt columns, and series of volcanic products. A special addition has been made by procuring large quantities of cave material from Mammoth, Wyandotte and other caves and much of this has been mounted realistically. The collection of concretions has also been much extended. Other structural types represented are veins, faulting, folding, erosion forms, dendrites, stratification, jointing and various rock textures.

The lithological collection comprises, as at the beginning, the better known rock types. These number about 2000 specimens. Such a collection cannot be expected to be of especial interest to the general public, but many consult it who desire to become familiar with the different rocks so as to distinguish them in the field.

The collection of relief and other maps has from the first proved of much public interest and instructiveness. The influence of relief upon climate, rainfall, commerce, industry, commercial and racial development are all illustrated by these maps. The origin and history of

scenic features such as those of Niagara Falls, Yosemite Valley and the Grand Canyon of the Colorado are also illustrated and a broader and more intelligent interest in these natural wonders aroused. Ideal maps illustrate the origin of single natural features, such as the formation of a valley, a glacier, a steep and dune coasts, etc. Especial attention has been paid to illustrating the influence of relief upon the development of our own country and many maps contribute to this end. So far as possible it has been deemed desirable to supplant the map representation of a region by photographs and this is rapidly being accomplished. Not only are features of the earth represented but the relief of the moon is also shown by an accurate hemispherical map nineteen feet in diameter. Whether Mars will be added to the series depends on future developments. A total of sixty-seven relief maps, seven ordinary maps and twenty-five framed photographs at present forms the collection.

The economic material acquired from the Exposition naturally included many trophies and more or less matter of transient interest. The first work undertaken so far as this material was concerned therefore had largely to do with reducing the trophic exhibits to permanent museum form. Marble and other pyramids were converted to slabs and specimens of uniform size, coal and stone blocks cut down and duplicates of all kinds separated. The collection then comprised large series of ores of the different metals from most of the important mining regions of the world, illustrations of a large number of metallurgical processes and collections of clays, marbles, building stones, coal, petroleum and salts illustrating the character and origin of these important economic products.

The task for the future in connection with these collections seemed to be, in addition to a scrupulous care of the material already on hand, their extension, by including more specimens of the products of the mines and quarries of the world and illustrations of the extraction, preparation and use of these products. While this plan has been in general pursued, certain considerations have developed in the course of the work which deserve mention. It has been found that to a certain extent economic and scientific values differ. Economic values are more relative than scientific values. The interest in a mineral species remains about the same from year to year, but the economic interest of a mine ceases when its product is dug out. Hence specimens from a large number of mines and quarries economically considered have a more or less temporary value. This is not saying that they do not have historical and scientific value, for this

they undoubtedly do have, but a collection exhibited for economic instructiveness alone must undergo frequent change. The scientific museum it would seem therefore should rather endeavor to procure typical ores illustrating well-known regions than specimens from many mines as such. A similar difficulty was found to characterize exhibits of metallurgical processes. Scarcely one of the processes received in illustrated form from the World's Columbian Exposition is in use in the same form today. If therefore space is lacking to exhibit such a process for its historical interest, it must be discarded and new ones be continually put in place, in order to successively illustrate modern practice. To do this for many processes would leave time for little else. The plan adopted has been therefore to exhibit a few standard typical processes only.

A striking change chronicled in the growth of the economic collections in the period under consideration has been that of the greater importance now attached to the non-metallic products. Fourteen years ago the different salts, abrasives, refractory products, pigments and even clays were hardly considered worthy a place in an exposition or museum. Now, however, such materials form a large and important part of any collection of economic minerals.

Another collection found to possess general interest, which has been added since the collections were first organized, is one illustrating different kinds of soils, their origin and composition. The collection of clays has been much enlarged in the period under consideration, so that more than 400 localities and varieties are now illustrated. The value of this collection has been considerably increased by preparing briquettes of each clay to show the relation of the burned and raw products. The collection illustrating varieties of marble according to color, pattern and locality, is, as now composed, probably the largest of its kind in the world, about 400 specimens being exhibited in slabs 9 x 15 inches in size. A feature of especial interest from the first in the coal exhibit has been a large plate glass map, 17 x 30 feet in size, received from the Department of Mines of the World's Columbian Exposition. On this are shown the coal fields of the United States. This map never fails to interest visitors, partly probably, because its size and position, level with the floor, give it a realistic effect, and partly because of the inherent interest attaching to the origin of coal. The collection of petroleum, illustrating varieties, processes of refining and products, has also always proved of much interest.

In pursuit of materials desirable for the collections the various expositions of Omaha, Nashville, Paris and St. Louis have been visited and

much that was important obtained. Requests for material at these expositions have always been met with the utmost courtesy and exhibitors have usually shown a desire to further as much as possible the aim of the Museum to build up large and representative collections. Special field trips made from time to time have afforded especially complete collections along certain lines, such as the zinc and lead ores of the United States, Mexican ores, graphites and clays.

To sum up: The present geological collections as compared with those possessed fourteen years ago, while occupying the same number of halls, have been more than doubled in number of specimens and the proportion of material has been changed somewhat. At the present time six halls are devoted to paleontology instead of three; two to relief maps; one to meteorites; two to minerals; one to structural geology; one to lithology; one to marbles and building stones; one to clays; two to coal one to petroleum; one to ores of the precious metals; two to ores of the base metals; and one to non-metallic minerals. The paleontological collections number about 30,000 specimens, the mineralogical and other systematic collections 15,000, and the economic collections 25,000. Substitution of permanent cases for temporary ones has been accomplished in part and this work is still going on. The economic collections are probably of their kind the largest in the world, and the systematic collections comprise much unique and valuable material affording foundation for further growth.

Mr. Alfred Emerson of the Art Institute, Chicago, then presented the following paper:

A PLEA FOR THE BETTER RECOGNITION OF CHRISTIAN ARCHÆOLOGY

In museums of sculpture all over the world at the present time, we find the history and development of ancient sculpture more or less abundantly illustrated, from the royal pyramid builders of Egypt to the age of the Antonines. There is a continuous gallery of antique sculpture all the way from the successors of Men, about 3600 B. C., to Marcus Aurelius and his more immediate successors, in the second half of the second century after Christ and the first quarter of the third.

In the Art Institute of Chicago, for example, our earliest statue,

represented in the plaster cast, is one of Chephren, the builder of the second pyramid at Gizeh. The latest imperial portrait in the Roman Sculpture Room is a copy of the London Caracalla. At this point in the historic evolution of the sculptural art we encounter a prodigious gap of eight whole centuries before the Chicago gallery illustrations of mediæval art, of Romanesque and Gothic architecture and sculpture begin. They do so nobly enough, with two French church portals of the XI century at St. Gilles and Clermont-Ferrand. French Renaissance architecture and sculpture are liberally illustrated in the same hall, the Italian Renaissance in another big room, XVIII and XIX century Italian, French and English, Danish, Swedish and American sculpture in two others. The Ghiberti to St. Gaudens series follows the ancient oriental and classical series abruptly, without explanation or transition. Boston and New York, London, Paris and Berlin have hardly accorded better practical recognition to Christian archæology in their relatively larger antique cast collections.

How true an index of the prevailing indifference to early Christian monuments this is may be gathered from the fact that only one of the twelve extant specimens of good-sized early Christian statuary has even been molded. That one, as it happens, is a marble statue of Julian the Apostate in the Louvre Museum, Paris, certainly not a Christian emperor whom the early Christians themselves would have delighted to honor. The pagan archæologists who sometimes control the formation of our cast collections seem to have proclaimed an actual boycott against Christian art. The uncouth and dependent, but surely not spiritless, efforts of the early Christian builder, image-carver and painter find no grace in their eyes.

Time was, to be sure (down to and including the first Empire and the French Restoration), when Winckelmann and Goethe, Canova and Visconti ruled the firmament of art and art criticism. Those ardent worshippers of the antique thought little of Christian art in any form. But no such hostility exists now. The romantic movement of the XIX century replaced the dethroned muses of Christian art and of mediæval literature in temples of honor. Goethe, the ultraclassicist, lived to write the Teutonic, mediæval mystery of Faust.

The new movement was duly followed or repeated in the gallery and museum world. It was only natural that practical assimilation should lag many years behind the original impulse. The neglect of the feeble infancy and adolescence of the new Christian art, which we have noted in our public art collections, is in fact no bigoted blindness to its value and

import on the part of scholars. It is merely a case of uncompleted educational development.

Fifteenth century France inaugurated the use of plaster casts for purposes of art education. King Francis I engaged the Italian painter Primaticcio to secure a plaster copy of the big equestrian statue of Marcus Aurelius, on the Capitoline Mount, and transport it to Paris. This plaster horseman was set up out of doors, in one of the open quadrangles of the Louvre Palace. That enclosure, in consequence, retained the name of White Horse Court (*La cour du cheval blanc*) for many years, even after the plaster monument crumbled away and was removed.

So much of this Parisian statue of Marcus Aurelius. But is it not singular that modern classical scholarship and art education have almost universally accepted the reign of this very Roman emperor, or more generally speaking the age of the Antonines, as the last station of antique art deserving serious notice? I must refer you to Mrs. Arthur Strong's brilliant volume on Roman Sculpture, a work published only two years ago, for the first fruits of the critical secession. Mrs. Strong has drawn the teeth of the old dogma that Roman art was a colorless and spiritless rehash of Greek models, and ceased to deserve notice, even on that score, with the close of the second century. The progress of the earlier scholarly criticism, and the popular assimilation of ancient art history were chiefly a backward advance. We passed from the later Roman empire to the early, from the Augustan age to Hellenistic age, from that period's Laocoön and Venuses of the Medici and of Melos to the ages of Praxiteles and Phidias, and from these classical Greek masters to the obscure origins of Greek art. We took our leap, thence, into the even more fascinating obscurities and mysteries of the Persian, Hittite, Mesopotamian and early Egyptian civilizations, as we saw them reflected in oriental painting, sculpture and architecture. And at the end of our scholarly progress we faced the Sphinx itself, and found no answer.

At a later stage, the *École des Beaux Arts* and South Kensington helped teach us to know and to recognize the mastery in sculpture of Michelangelo and Donatello. From these points of repair the educational apprehension of modern art has made a further advance, backwards, to the beauties of Gothic and Romesque architecture and sculpture, and forwards to the wonders of XVII, XVIII, and XIX century plastic art. It is only fair to link this movement of expansion with the name of Viollet le Duc, and of his posthumous creation, the *Musée du Trocadéro*.

Whatever belongs between A. D. 200 and 1000 is still systematically ignored in our public art galleries, both abroad and at home. We have

already noted the fact that only one early Christian sculpture of any size has been molded, and can be had in the cast market at the present time. No stronger proof of my statement can be offered. A Russian writer, Merejovski, has made Emperor Julian the hero of a picturesque novel called "The Death of the Gods." But one feels keenly the anomaly of having to make this particular Roman prince, whom we certainly cannot admire in our capacity as Christians, the *pièce de résistance* of a section, cabinet, or museum of Christian antiquities!

The coöperation of many museums is needed to lift the veil that now curtains the later Roman and early Christian ages. Let the general public have a glimpse of the stirring times of the Severi, of the soldier emperors Aurelian and Claudius Gothicus, and of Constantine and Justinian. The energy and distinction of the later imperial portraiture deserves a finer unfolding than it has had. Witness, for example, the Vatican's noble busts of Emperors Pupienus and Philip, or Duke Tonlonia's splendid marble portraits of Emperors Maxentius and Magnentius and of Constantine's wife Fausta. Why are casts of the arch of Trajan to be seen only at Chicago and Princeton, one of the column of Trajan only at Saint-Germain and Berlin, a cast of the column of Marcus Aurelius only at Berlin, a model of the arch of Constantine only at the Metropolitan Museum of New York City? Why should Liverpool and South Kensington have a monopoly of Roman consular diptychs, and of other fascinating pagan and Christian ivory carvings, when it is so easy to get those ancient treasures faithfully reproduced from Messrs. Elkington and Company's guttapercha molds?

Does it seem credible that not one specimen of a hundred Christian sarcophagi at Rome, Syracuse and Ravenna, at Arles and Toulouse, or in Spain, French Africa and the Levant has ever been molded?

The porphyry sarcophagi of Constantine's mother, St. Helen, and of his daughters are in the Vatican Museum. Marble ones of the Christian emperors Honorius and Constantius and of the Empress Galla Placidia adorn one of the Ravenna churches. The Parian marble sarcophagus of Consul Junius Bassus in the crypt of St. Peter's is carved with ten Biblical subjects, extending from Adam and Eve in the garden of Eden to a Christ in glory who plants his feet on the Roman sky-god Cælus. The inscription on the Vatican crypts marble recites that Junius Bassus was Prefect of Rome, and died in the year 359 after Christ. We know from other sources that he was the dedicator under Constantine of a public hall which Pope Simplicius was able to dedicate as a church about A. D. 471. The building in question is now destroyed; but the Renaissance

architect Sangallo's drawings of it on parchment are preserved in a Roman library.

A well-stocked section of Christian art, in a gallery of the history of sculpture, ought to show copies of ten or twelve early Christian sarcophagi to illustrate the principal types and subjects of those splendid monuments of the early Church. Classical scholars may be forgiven a smile in the Lateran Museum, when they see Andromeda's sea-monster doing duty as the whale of the prophet Jonah, or Jonah himself, reclining under his pumpkin-vine, borrow the form and pose of the Grecian shepherd Endymion, the beloved of the moon-goddess. The same habit of contaminating pagan ideas with Christian led the mural mosaic setters of Byzantium to depict the essentially pagan river-god Jordan as witnessing the baptism of Jesus in his own current. Other mosaic paintings oppose a personified Hades to the Savior in limbo. We smile at these classical reminiscences, but the simplicity, the innocence and the reverent feeling of early Christian carvings and pictures would possess a strong interest for the everyday churchgoer and Sunday-school pupil, no less than for sculptors, architects, decorative designers, and the gifted art critic who is always with us. I want my children to find something they can understand without being lectured at, even on the ground floor of an art museum.

Now I fear it would take me long to describe the varied interest of old Christian and of early Byzantine ivory carvings, minor statuary, woven and embroidered stuffs, of church utensils, illuminations on parchment, gold-leaf pictures under glass, of ecclesiastical frescoes and mosaics, and of all the other products of sacred art. But I shall bespeak your indulgence a moment longer for a short account of early Christian statuary and of its favorite subjects. Because all of it that has survived can be enumerated on ten fingers, and is withal tolerably characteristic of the opportunities which the neglected field of the older religious art holds open to museum directorates.

Christianity in Rome dates from the first century. One of the Roman catacombs dates from the second. The oldest Christian statues have been found in third century catacombs. The Good Shepherd of the parable, with a rescued sheep on his shoulders, was one of the favorite subjects of the early converts to Christianity. Their sculptors appear to have portrayed the Savior of mankind principally under this light veil of disguise. Five statuettes of the Good Shepherd are preserved in the museums of Rome, Constantinople and Athens. The Shepherd is in each of these variously mutilated figures a beardless boy with long curls

falling to his shoulders, and wears the purely classical, Græco-Italic tunica exomis, a tunic, that is to say, which is clasped only on one shoulder. In addition to this light coat of the working classes, the shepherd lad wears high, rustic boots, and carries a stick to throw at rabbits, and a pouch. This mode of representing the Redeemer affects us rather strangely at first. And the early Christian artists' mastery of form is far from perfect. The true charm of the better examples of the Good Shepherd motive resides in a note of childlike sweetness. The Garrett Biblical Institute at Evanston, Illinois, is now elaborating tentative purchase-lists for a Museum of Christian Archæology which it will consecrate to the memory of the late Professor Charles Bennett. It hopes to recognize the deeply religious spirit and the dignity of the antique figure of the Good Shepherd by having the best of the three replicas of it at the Lateran Museum copied in marble rather than in plaster of Paris.

A second III century statue from the catacombs is of less manifestly Christian subject and execution. It is a seated portrait of St. Hippolytus, a dissident Greek father of the old Roman church. But we should be unable to distinguish the Lateran Hippolytus from any Roman patrician without the convincing evidence of the Greek inscription at one side of the marble. It gives a list of the Greek father's writings, and a table of his system for determining Easter.

The IV century has left us five marble statues of secular character. Two of them, in the Capitoline museum, represent an elderly and a young Roman Consul; another, in the Museo delle Terme, is the portrait of a togate magistrate. I have already touched upon the two statues of Emperor Julian in the habit of a crowned philosopher which were found in the ruins of a Roman Imperial palace on the left bank of the Seine. It will be remembered that Julian's turbulent legions proclaimed him Emperor at Paris. A colossal bronze statue of Theodosius stands on the quay at Barletta, Apulia; but it will be out of the question to procure a cast of this contemporary portrait and monument of the united Roman Empire's last sovereign, on account of its inordinate size.

Our next and last specimen of the oldest ecclesiastical statuary is the familiar bronze figure of St. Peter in the great church of that saint in Rome. Scoffers used to assert that this ancient relic of the early Church is the purely pagan portrait statue of some Roman Consul, or worse yet, of a Jupiter Capitolinus. Its purely Christian origin and subject are in reality unquestionable. The Roman statue of St. Peter, prince of apostles, was probably cast at Constantinople, under and for Emperor

Leo I, in the year 451 after the birth of Christ. It will be no light matter, I apprehend, to obtain the Vatican's permission to take a mold of this peculiarly sacred sculptured relic of the IV century Christian world. And with it my unfortunately exhaustive statistic of the III, IV and V century Christian statues so far recovered is at an end.

One sympathetic portrayal of Our Savior, one counterfeit presentment of an apostle, one Church Father, two Roman consuls, and the portrait figures of two renowned Roman emperors of the post-Constantinian age are no mean patrimony for the future halls and cabinets of the earliest Christian sculpture in our public and collegiate galleries of history and art to draw upon.

And now, in conclusion, I heartily invoke the practical coöperation of other museums, and of their generous supporters, in according full recognition to early Christian art documents. I feel sure that in so doing they will be acting not only for the benefit of the Garrett Biblical Institute's public-spirited project, but for the lasting advantage of the responsive American public. I wish I might persuade several American museums to place one or more orders for good casts and electrotype copies of the leading early Christian heirlooms, and for good models and details of old Christian architecture, at once. It were an ungallant thing to let the pioneer gallery of Christian antiquities in our part of the world—I had almost said in any part of the world—wrestle with the disproportionate first cost of getting inedited material properly copied alone.

President French.—"I feel my sands running out as president, and I wish to say that I have felt very much honored by being allowed to hold this office for one year. We have been most heartily glad to have the Association here, and we hope that the revolving years will bring it at no distant day to us again. In the meanwhile, we look forward with enthusiasm to the meetings at Philadelphia and Buffalo."

On motion of Mr. A. R. Crook, Curator, Museum of Natural History, State of Illinois, Springfield, the Association then adjourned to meet at Philadelphia at a date to be fixed hereafter by the Council.

APPENDIX

CONSTITUTION OF THE AMERICAN ASSOCIATION OF MUSEUMS

ARTICLE I

NAME

The name of this Association shall be "The American Association of Museums."

ARTICLE II

OBJECT

The object of this Association shall be to promote the welfare of Museums, to increase and diffuse knowledge of all matters relating to them, and to encourage helpful relations among Museums and those interested in them.

ARTICLE III

MEMBERSHIP

All Museums officially represented at the first meeting of this Association, held at the American Museum of Natural History in New York, on May 15, 1906, all persons taking part in the organization of this Association, or who on the above date, or prior thereto, have by letter signified their wish to become members of the Association, shall become Charter Members on payment before the next annual meeting of the Association of the fees hereinafter provided for.

The Members of the Association shall be Active, Associate, Sustaining, and Honorary.

Persons actively engaged in the work of Museums may become Active Members on the payment of two dollars per annum, and may become Active Members for Life upon payment of thirty dollars at any one time.

Persons not actively engaged in the work of Museums, contributing five dollars per annum, may become Associate Members.

Each Museum paying not less than ten dollars a year shall be a Sustaining Member of the Association, and through its chief executive officer, or a properly accredited representative, shall be entitled to cast a vote on all matters coming before the Association.

Persons distinguished for eminent services, either to the cause of Museums or to this Association, may become Honorary Members. The number of Honorary Members shall be limited to fifteen. When ten Honorary Members have been elected then thereafter not more than two such members may be elected annually.

Active and Sustaining Members only shall have a right to vote, and Active Members only may hold office.

Any Museum or person proposed in writing for Active, Associate, or Sustaining Membership by a Member of the Association, and approved by the Council, upon the payment of the proper fee shall become a Member of the Association.

Any person contributing five hundred dollars or more at any one time shall become a Patron of the Association.

ARTICLE IV

OFFICERS

The officers of the Association shall be a President, two Vice-Presidents, a Secretary, and a Treasurer, and six other persons designated as Councillors, and these eleven shall constitute the Council. The President and two Councillors chosen by the Association shall retire annually, and for one year shall be ineligible for reelection to the same office.

ARTICLE V

COUNCIL

The general control of the affairs of the Association, except as otherwise herein provided, shall be vested in the Council.

ARTICLE VI

ELECTION OF OFFICERS

Officers shall be elected by ballot at the annual meeting.

The Council shall have power to fill any vacancies which may occur in its membership between annual meetings.

ARTICLE VII

MEETINGS

A general meeting shall be held in each calendar year. Special meetings may be appointed by the Association or called by the Council. The time and place of the annual meeting shall be determined by the Association. In order to diffuse a knowledge of Museums and their work, the Association shall meet in a different city or town each succeeding year, unless otherwise determined by the Association.

At the annual meeting papers may be read, matters relating to Museums discussed, and any business relating to the affairs of the Association shall be transacted.

Special meetings may be called by the Council in emergencies, and only matters stated in the call shall be considered at such special meetings.

REPORT OF THE TREASURER OF THE AMERICAN ASSOCIATION OF MUSEUMS, PRESENTED AT THE ANNUAL MEETING, CHICAGO, MAY 5-7, 1908

Balance on hand at meeting, June 4, 1907..... \$472.70

RECEIPTS.

| | |
|--|--------|
| 19 Active membership fees for year ending May 15, 1907 | 38.00 |
| 82 Active membership fees for year ending May 15, 1907 | 64.25 |
| 3 Active membership fees for year ending May 15, 1909 | 6.00 |
| 1 Active membership fee for year ending May 15, 1910 | 2.00 |
| 2 Sustaining Memberships for year ending May 15, 1907..... | 20.00 |
| 17 Sustaining Memberships for year ending May 15, 1908..... | 170.00 |

Life Memberships:

| | |
|---|-----------------|
| 1 at \$30..... | \$30.00 |
| Balance due from transfer from sustaining to life membership..... | 20.00 |
| | <hr/> 50.00 |
| Sale of publication..... | 1.00 |
| Donation of W. J. Holland..... | 200.00 |
| Total..... | <hr/> \$1123.95 |

EXPENDITURES.

| | |
|---------------------------------------|----------------|
| 1907 | |
| July 16 To bill H. C. Bumpus | \$7.00 |
| July 6 To Philadelphia Museums | 2.50 |
| Aug. 9 To postage stamps | 3.00 |
| Aug. 19 To Philadelphia Museums | 2.30 |
| Aug. 7 To P. M. Rea, Secretary | 5.30 |
| Jan. 27 To John C. Bragdon | 35.10 |
| 1908 | |
| Mar. 31 To W. J. Holland | 14.24 |
| Apr. 7 To New Era Printing Co..... | 386.57 |
| Apr. 7 To W. J. Holland | 2.68 |
| Apr. 15 To Philadelphia Museums..... | 2.50 |
| Apr. 28 To Postage Stamps. | 3.00 |
| Apr. 29 To Wm. H. Hoskins Co | 5.25 |
| May 1 To Wm. H. Hoskins Co | 1.00 |
| | <hr/> 470.49 |
| Balance in treasury, May 2, 1908..... | <hr/> \$653.46 |

W. P. WILSON,
Treasurer.

Examined and found correct:

O. C. FARRINGTON,
FRANK C. BAKER,
N. H. CARPENTER,
Auditing Committee.

MEMBERS OF THE AMERICAN ASSOCIATION OF MUSEUMS¹

LIFE MEMBERS

The asterisk (*) denotes a Charter Member.

- Crook, A. R., Curator, Illinois State Museum of Natural History, Springfield, Ill.
*Hall, Robert C., Owner, Hall Museum of Anthropology, 240 Fourth Ave., Pittsburgh, Pa.
*Henshaw, Samuel, Curator, Museum of Comparative Zoölogy, Harvard University, Cambridge, Mass.
*Holland, W. J., Director, Department of the Museum, Carnegie Institute, Pittsburgh, Pa.
*Minot, Charles S., Harvard Medical School, Boston, Mass.
*Talmage, James E., Director, The Deseret Museum, Salt Lake City, Utah.

ACTIVE MEMBERS

- *Adams, Charles C., University of Chicago, Chicago, Ill.²
*Akeley, C. E., Taxidermist-in-Chief, Field Museum of Natural History, Chicago, Ill.
*Allen, J. A., Curator of Mammalogy and Ornithology, American Museum of Natural History, New York, N. Y.
*Ami, Henry M., Geological Survey of Canada, Ottawa, Canada.
Atkinson, D. A., Honorary Custodian of Reptiles and Amphibians, Carnegie Museum, Pittsburgh, Pa.
*Baker, Frank C., Curator, The Chicago Academy of Sciences, Lincoln Park, Chicago, Ill.
*Barber, Edwin Atlee, Curator, Pennsylvania Museum and School of Industrial Art, Memorial Hall, Fairmount Park, Philadelphia, Pa.
*Barbour, Edwin Hinckley, Curator of the State Museum and State Geologist of Nebraska, Lincoln, Neb.
*Beckwith, Paul Edmond, Assistant Curator, Division of History, National Museum, Washington, D. C.³
Beatty, John W., Director, Department of Fine Arts, Carnegie Institute, Pittsburgh, Pa.
*Bennett, Miss Bessie, Assistant to the Director, The Art Institute of Chicago, Chicago, Ill.
*Berg, George L., Director, Washington State Art Association, Seattle, Wash.

¹ The following list has been furnished by the Treasurer, Dr. W. P. Wilson, and includes the names of all whose applications for membership were approved by the Council down to May 7, 1908, and who have qualified by payment of dues.

² Present address: Natural History Building, University of Illinois, Urbana, Ill.

³ Died, June 27, 1907.

- Beutenmüller, William, Curator, Department of Entomology, American Museum of Natural History, New York, N. Y.
- Bibbins, Arthur Barnweld, Director of the Museum, Woman's College, Baltimore, Md.
- Blackman, Elmer Ellsworth, Archæologist, Nebraska State Historical Society, Lincoln, Neb.
- *Brigham, William T., Director, Bernice Pauahi Bishop Museum, Honolulu, H. I.
- *Britton, N. L., Director-in-Chief, New York Botanical Garden, Bronx, Park, New York, N. Y.
- Brown, Arthur Erwin, Curator, Academy of Natural Sciences; Director, Zoölogical Gardens, Philadelphia, Pa.
- Brues, Charles Thomas, Curator of Invertebrate Zoölogy, Milwaukee Public Museum, Milwaukee, Wis.
- *Bryan, William Alanson, President, Pacific Scientific Institution, Honolulu, H. I.
- *Bumpus, Hermon C., Director, American Museum of Natural History, New York, N. Y.
- *Burchard, Edward L., Museum Extensionist, Freeport, Ill.
- Burkholder, C. H., Assistant to the Director, The Art Institute of Chicago, Chicago, Ill.
- Carpenter, Newton H., Secretary, The Art Institute of Chicago, Chicago, Ill.
- *Clarke, Sir Casper Purdon, Director, Metropolitan Museum of Art, New York, N. Y.
- Coggeshall, Arthur S., Preparator-in-Chief, Department of Paleontology, Carnegie Museum, Pittsburgh, Pa.
- *Collie, George L., Curator, Logan Museum, Beloit College, Beloit, Wis.
- Comfort, George F., Director, Syracuse Museum of Fine Arts, Syracuse, N. Y.
- *Comparette, T. Louis, Curator, Numismatic Collection, United States Mint, Philadelphia, Pa.
- Corliss, George, Assistant to the Director, The Art Institute of Chicago, Chicago, Ill.
- Cory, C. B., Curator of Zoölogy, Field Museum of Natural History, Chicago, Ill.
- Covert, Adolphe Boucard, Curator, University of Cincinnati Museum, Cincinnati, Ohio.
- Dahlgren, B. E., Assistant Curator of Invertebrate Zoölogy, American Museum of Natural History, New York, N. Y.
- *Dean, Bashford, Curator of Fossil Fishes, American Museum of Natural History; Curator of Arms and Armor, Metropolitan Museum of Art, New York, N. Y.
- *de Forest, Robert W., Trustee and Secretary, Metropolitan Museum of Art, New York, N. Y.
- *Dorsey, George A., Curator of Anthropology, Field Museum of Natural History, Chicago, Ill.
- Douglass, Earl, Assistant in Research Section of Paleontology, Carnegie Museum, Pittsburgh, Pa.

- *Dow, George Francis, Secretary and Curator of the Museum, Essex Institute, Salem, Mass.
- *Dyche, L. L., Curator of Birds and Mammals, State University, Lawrence, Kansas.
- *Eastman, Charles R., Curator of Vertebrate Paleontology, Museum of Comparative Zoölogy, Harvard University, Cambridge, Mass.
- *Eigenmann, Carl H., Professor of Zoölogy and Dean of the Graduate School, Indiana, University, Bloomington, Ind.
Emerson, Alfred, Acting Director, Bennett Museum of Christain Archaeology, Garrett Biblical Institute, Evanston, Ill. Address: The Art Institute of Chicago, Chicago, Ill.
- Failing, Henriette H., Curator, Portland Art Association Museum of Art, Portland Oregon.
- Fairbanks, Arthur, Director, Museum of Fine Arts, Boston, Mass.
- *Farrington, Oliver C., Curator of Geology, Field Museum of Natural History, Chicago, Ill.
- Fisher, Fannie, Assistant Curator, Illinois State Museum of Natural History, Springfield, Ill.
- Foulke, J. B., Administrative Assistant, American Museum of Natural History, New York, N. Y.
- *Fox, William Henry, Director, John Herron Art Institute, Indianapolis, Ind.
- *French, William M. R., Director, The Art Institute of Chicago, Chicago, Ill.
- *Gallup, Anna Billings, Curator, The Children's Museum, Brooklyn Institute of Arts and Sciences, Brooklyn, N. Y.
- *Gest, J. H., Director, The Cincinnati Museum Association, Cincinnati, Ohio.
- *Gilman, Benjamin Ives, Secretary, Museum of Fine Arts, Boston, Mass.
- Glenk, Robert, Secretary, Louisiana State Museum, New Orleans, La.
- Glenn, L. C., Vanderbilt University Museum, Nashville, Tenn.
- Goodale, George Lincoln, in charge Harvard Botanical, Harvard University, Cambridge, Mass.
- *Goodyear, William H., Curator of Fine Arts, Brooklyn Institute of Arts and Sciences, Brooklyn, N. Y.
- *Gordon, G. B., Curator, Section of Ethnology, Free Museum of Science and Art, Philadelphia, Pa.
Grant, U. S., Curator, Museum of the College of Liberal Arts, Northwestern University, Evanston, Ill.
- Greenman, Jesse M., Assistant Curator of Botany, Field Museum of Natural History, Chicago, Ill.
- *Greenman, Milton J., Director, The Wistar Institute of Anatomy, Philadelphia, Pa.
- *Griffin, Delia Isabel, Director, The Fairbanks Museum of Natural Science, St. Johnsbury, Vt.
- *Griffith, A. H., Director, Detroit Museum of Art, Detroit, Mich.
- Gueret, E. N., Assistant Curator, Division of Osteology, Field Museum of Natural History, Chicago, Ill.

- *Hall, Christopher W., Curator, Geological Museum, University of Minnesota, Minneapolis, Minn.
- Hartman, C. V., Curator, of Archæology and Ethnology, Carnegie Museum, Pittsburgh, Pa.
- Hastings, George T., Assistant Curator, Philadelphia Museums, Philadelphia, Pa.
- *Henderson, Junius, Curator of the Museum, University of Colorado, Boulder, Col.
- *Hitchcock, Charles H., Curator, Butterfield Museum, Dartmouth College, Hanover, N. H.
- *Hollick, Arthur, Curator, Department of Fossil Botany, New York Botanical Garden, New York, N. Y.
- Hooper, Franklin W., Director, The Brooklyn Institute of Arts and Sciences, Brooklyn, N. Y.
- *Hopkins, Anderson H., Librarian, Carnegie Library, Pittsburgh, Pa.
- *Hornaday, William T., Director, New York Zoological Park, New York, N. Y.
- *Houston, S. F., President, Department of Archæology, University of Pennsylvania, Philadelphia, Pa.
- *Hovey, Edmund Otis, Associate Curator, Department of Geology, American Museum of Natural History, New York, N. Y.
- Howe, Marshall A., Curator of the Museum, New York, Botanical Garden, New York, N. Y.
- Hyett, William James, in charge of Paintings, Department of Fine Arts, Carnegie Institute, Pittsburgh, Pa.
- Ives, Halsey C., Director, Museum of Fine Arts, St. Louis, Mo.
- *Jenkins, L. W., Curator of Ethnology, Peabody Museum, Salem, Mass.
- Jennings, Otto E., Assistant Curator of Botany, Carnegie Museum, Pittsburgh, Pa.
- Jennings, Mrs. Otto E., Assistant in Section of Botany, Carnegie Museum, Pittsburgh, Pa.
- *Johnson, Charles W., Curator, Boston Society of Natural History, Boston, Mass.
- Jones, Lynds, Curator of the Museum, Oberlin College, Oberlin, Ohio.
- *Kahl, Paul Hugo Isidor, Custodian, Entomological Museum, Carnegie Institute, Pittsburgh, Pa.
- Katzenberger, George A., Curator, Museum of Carnegie Library, Greenville, Ohio.
- Kent, Henry W., Assistant Secretary, Metropolitan Museum of Art, New York, N. Y.
- *Kermode, Francis, Curator, Provincial Museum, Victoria, British Columbia.
- Koehler, Robert, Director, Minneapolis School of Fine Arts, Minneapolis, Minn.
- *Kunz, George F., Honorary Curator of Gems, American Museum of Natural History, New York, N. Y.
- *Kurtz, Charles M., Director, Buffalo Academy of Fine Arts, Albright Art Gallery, Buffalo, N. Y.

- *Lamb, Daniel Smith, Pathologist, Army Medical Museum, Washington, D. C.
- *Letson, Elizabeth J., Director of the Museum, Buffalo Society of Natural Sciences, Buffalo, N. Y.
- *Lindahl, Josua, Late Director of the Museum Cincinnati Society of Natural History, Cincinnati, Ohio.
- *Link, Gustave A., Taxidermist, Carnegie Museum, Pittsburgh, Pa.
- Lippincott, Elsie, Librarian, Field Museum of Natural History, Chicago, Ill.
- Loomis, Leverett Mills, Director of the Museum, California Academy of Sciences, San Francisco, Cal.
- *Lucas, Frederick A., Curator-in-Chief, Museums of the Brooklyn Institute of Arts and Sciences, Brooklyn, N. Y.
- *McCurdy, George Grant, Curator, Section of Anthropology, Yale University Museum, New Haven, Conn.
- Maddox, Robert D., Curator of the Museum, Medical College of Ohio, Cincinnati, Ohio.
- Mason, Otis T., Curator of Ethnology, U. S. National Museum, Washington, D. C.¹
- *McGee, W. J. Director, St. Louis Public Museum, St. Louis, Mo.
- *McGuire, F. B., Director, Corcoran Gallery of Art, Washington, D. C.
- McIlvaine, Mabel, Assistant, Metropolitan Museum of Art, New York, N. Y.
- Meek, Seth E., Field Museum of Natural History, Chicago, Ill.
- *Mellor, Charles C., Chairman, Committee on the Museum, Carnegie Institute, Pittsburgh, Pa.
- Mengel, Levi W., Department of Natural History, Boys' High School, Reading, Ia.
- Meyers, Ira B., Curator, School of Education Museum, University of Chicago, Chicago, Ill.
- *Mills, William C., Curator and Librarian, Ohio State Archaeological and Historical Society, Ohio State University, Columbus, Ohio.
- *Miner, Roy W., Assistant Curator of Invertebrate Zoölogy, American Museum of Natural History, New York, N. Y.
- *Montgomery, Henry, Curator of the Museum, University of Toronto, Toronto, Ontario.
- Moorehead, Warren K., Curator, Department of Archæology, Phillips Academy, Andover, Mass.
- Morris, E. L., Brooklyn Institute of Arts and Sciences, Brooklyn, N. Y.
- *Morse, Edward S., Director, Peabody Museum, Salem, Mass.
- *Morse, S. R., Curator, New Jersey, State Museum, Trenton, N. J.
- *Nachtrieb, Henry F., Curator, Zoölogical Museum, University of Minnesota, Minneapolis, Minn.
- Nichols, Henry W., Assistant Curator of Geology, Field Museum of Natural History, Chicago, Ill.

¹ Died, Nov. 5, 1908.

- *Nutting, Charles C., Curator, Museum of Natural History, State University of Iowa, Iowa City, Iowa.
- Ortmann, Arnold E., Curator of Invertebrate Zoölogy, Carnegie Museum, Pittsburgh, Pa.
- Paarmann, J. H., Curator, Davenport Academy of Sciences, Davenport, Iowa.
- Perine, Miss Clara N., Assistant to the Director, Wistar Institute of Anatomy, Philadelphia, Pa.
- *Peterson, Harry C., Curator, Leland Stanford Jr. Museum, Palo Alto, Cal.
- *Peterson, O. A., Preparator of Mammals, Section of Paleontology, Carnegie Museum, Pittsburgh, Pa.
- Pollard, Charles Louis, Curator-in-Chief, Staten Island Association of Arts and Sciences, New Brighton, N. Y.
- Prentice, Sydney, Artist and Illustrator, Carnegie Museum, Pittsburgh, Pa.
- Putnam, Edward K., Acting Director, Academy of Sciences, Davenport, Iowa.
- *Putnam, Frederick W., Curator, Peabody Museum, Harvard University; Director, Anthropological Museum, University of California. Address, Cambridge, Mass.
- *Rathbun, Richard, Assistant Secretary Smithsonian Institution, in charge U. S. National Museum, Washington, D. C.
- *Rathmann, C. G., Director, Educational Museum, St. Louis, Mo.
- *Raymond, Percy E., Assistant Curator of Invertebrate Zoölogy, Carnegie Museum, Pittsburgh, Pa.
- *Rea, Paul M., Director, The Charleston Museum, Charleston, S. C.
- Riggs, Elmer Samuel, Assistant Curator of Paleontology, Field Museum of Natural History, Chicago, Ill.
- Robinson, Edward, Assistant Director, Metropolitan Museum of Art, New York, N. Y.
- *Rothrock, Boyd P., Curator, Division of Zoölogy, Pennsylvania State Museum, Harrisburg, Pa.
- Rothrock, Mrs. Boyd P., Division of Zoölogy, Pennsylvania State Museum Harrisburg, Pa.
- Santens, Jos. A., Preparator, Taxidermic Laboratory, Carnegie Museum, Pittsburgh, Pa.
- *Santens, Remi H., Preparator, Taxidermic Laboratory, Carnegie Museum Pittsburgh, Pa.
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- *Schuchert, Charles, Curator, Department of Geology, Yale University Museum, New Haven, Conn.
- Shafer, John A., Custodian of the Museums, New York Botanical Garden, Bronx Park, New York, N. Y.
- *Sherwood, George H., Assistant Secretary and Treasurer, American Museum of Natural History, New York, N. Y.
- *Skiff, Frederick J. V., Director, Field Museum of Natural History, Chicago, Ill.

- Small, John K., Head Curator of the Museums and Herbarium, New York Botanical Garden, Bronx Park, New York, N. Y.
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- *Smith, T. Guildford, President, Buffalo Society of Natural Sciences, Buffalo, N. Y.
- Stewart, Douglas, Assistant to the Director, Carnegie Museum, Pittsburgh, Pa.
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- Swarth, Harry S., Assistant, California Museum of Vertebrate Zoology, Berkeley, Cal.
- Toothaker, Charles R., Curator, The Philadelphia Museums, Philadelphia, Pa.
- *Tower, Ralph W., Curator of Physiology, American Museum of Natural History, New York, N. Y.
- *Townsend, Charles H., Director, New York Aquarium, Battery Park, New York, N. Y.
- *Townsend, Louis H., Osteologist, Carnegie Museum, Pittsburgh, Pa.
- Tuttle, W. F., Administrative Assistant, Art Institute of Chicago, Chicago, Ill.
- Van Horne, Mary, Acting Librarian, The Art Institute of Chicago, Chicago, Ill.
- *Ward, Henry L., Director, Public Museum of the City of Milwaukee, Milwaukee, Wis.
- Webster, Frederick S., Preparator, Taxidermic Laboratory, Carnegie Museum, Pittsburgh, Pa.
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- *Wilcomb, C. P., Curator, Hall Museum of Anthropology, Aspinwall, Pa.
- *Wilder, Burt Green, Curator, Museum of Vertebrates, Cornell University, Ithaca, N. Y.
- *Willoughby, Charles C., Assistant Curator, Peabody Museum, Cambridge, Mass.
- *Wilson, W. P., Director, The Philadelphia Museums, Philadelphia, Pa.
- *Wissler, Clark, Curator of Ethnology, American Museum of Natural History, New York, N. Y.
- Woodruff, Frank M., Ornithologist, The Chicago Academy of Sciences, Chicago, Ill.
- Worth, William A., Director, Educational Museum, New York, N. Y.
- Zeller, August, Assistant, Department of Fine Arts, Carnegie Institute, Pittsburgh, Pa.
- *Zierden, Alicia M., Curator, Division of Education, Pennsylvania State Museum, Harrisburg, Pa.

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- *The Art Institute of Chicago, Chicago, Ill.
- *Brooklyn Institute of Arts and Sciences, Eastern Parkway, Brooklyn,
N. Y.
- *Carnegie Museum, Department of The Carnegie Institute, Pittsburgh, Pa.
- *The Charleston Museum, Charleston, S. C.
- *The Chicago Academy of Sciences, Lincoln Park, Chicago, Ill.
Cincinnati Museum Association, Cincinnati, Ohio.
- *The Corcoran Gallery of Art, Washington, D. C.
- *The Deseret Museum, Salt Lake City, Utah.
- *The Fairbanks Museum of Natural Science, St. Johnsbury, Vt.
- *The Field Museum of Natural History, Chicago, Ill.
- *Free Museum of Science and Art, Department of Archaeology, Univer-
sity of Pennsylvania, Philadelphia, Pa.
- *John Herron Art Institute, Indianapolis, Ind.
- *Metropolitan Museum of Art, New York, N. Y.
Museo Nacional de Bogota, Bogota, Colombia.
Museum of the College of Liberal Arts, Northwestern University, Evans-
ton, Ill.
- *Museum of Fine Arts, Boston, Mass.
- *New York Botanical Garden, Bronx Park, New York, N. Y.
- *New York State Museum, Albany, N. Y.
Peabody Museum, Salem, Mass.
- *Pennsylvania Museum and School of Industrial Art, Memorial Hall,
Fairmount Park, Philadelphia, Pa.
The Philadelphia Museums, 34th St., below Spruce, Philadelphia, Pa.
- *Public Museum of the City of Milwaukee, Milwaukee, Wis.
St. Louis Museum of Fine Arts, St. Louis, Mo.
Syracuse Museum of Fine Arts, Syracuse, N. Y.
University of Nebraska, Lincoln, Neb.
Walker Museum, University of Chicago, Chicago, Ill.
- *Washington State Art Association, Seattle, Wash.
- *Williams College, Williamstown, Mass.

INDEX.

- Adams, C. C., Paper on "Pedigree Cultures and Museums," 11
 Remarks by, 29, 123
- Adams, Milward, Invitation from, 4; Resolution of thanks to, 132
- Akeley, C. E., Paper on "Modern Methods in Taxidermy," 57
- American Museum of Natural History, Fumigation in, 124; Lectures at, 102, 107; Traveling collections from, 55
- Archæology, Collections of, at Logan Museum, Beloit College, Wis., 24
- Archæology, Christian, A Plea for the Better Recognition of, Paper by Alfred Emerson, 139; Proposed Museum of, 144
- Architecture, Museum, 73, 93
- Art and Science, advisability of separate sessions of, 6, 29
- Art, Free, Report of committee on, 8-10
- Art Institute of Chicago, Classes for teachers at, 92; Lectures at, 107; Resolution of thanks to, 131
- Art Museums, some Ideas on the Founding of, Paper by Robert Koehler, 125
- Attendance, Roll of, 3
- Auditing Committee, 6, 83
- Auditorium Hotel, Resolution of thanks to management of, 131
- Automobile Owners, Resolution of thanks to, 132
- Baker, F. C., Paper on "The Natural History Survey of the Chicago Academy of Sciences," 15
 Remarks by, 19, 20, 69, 90, 104, 117, 131
 Appointed on Auditing Committee, 6
 Resolution offered by, 133
- Beckwith, Paul Edmond, Notice of death, 5
- Bennett, Miss Bessie, Remarks by, 25
- Bishop Museum, Honolulu, Survey of "kaows," 22
- Blackman, E. E., Remarks by, 19, 21, 31, 37, 68, 99
- Bryan, W. A., Remarks by, 22
- Buffalo, Invitation to meet in, 93; Invitation accepted, 93
- Buffalo Society of Natural Sciences, Records of Indian trails, etc., 21
- Carnegie Foundation, Committee on, 7
- Carpenter, N. H., Remarks by, 107; Appointed to Auditing Committee, 6; Appointed to Committee on 2d Class Postal Rates, 8
- Cases, Museum, Abolishing shelves in, 117; Tops of, 119; Some Principles in Design of, Paper by Dr. O. C. Farrington, 110; Color of, 115, 117
- Chamberlin, T. C., Address of Welcome, 108.
- Chicago Academy of Sciences, Function of, 108; Lectures at, 104; Resolution of thanks to, 131

- Chicago Historical Society, Invitation to visit building of, 4; Resolution of thanks to, 131; Survey of Indian inhabitants, 19
- Children's Museum Building, Essentials of a, Paper by Miss A. B. Gallup, 84; Relation to the General Museum, 85, 87, 89, 90, 91
- Collie, George L., Paper on "The Field of the Small Museum," 23
Remarks by, 26, 45
- Committee on Affiliation with the National Educational Association, 6; Auditing, 6, 83; on Free Art, 8-10; on 2d Class Postal Rates, 7; on Program, 6; on Publishing a Museum Directory, 38; on Publication of Proceedings of Pittsburgh Meeting, 10; to Secure Benefits of Carnegie Foundation, 7
- Constitution of the American Association of Museums, 146
- Corliss, George, Remarks by, 31
- Council, Members of, vii; Election to, 57; Date of Convention referred to, 93
- Crerar Library, Invitation to visit, 4; Resolution of thanks to, 131
- Crook, A. R., Remarks by, 104
- Davenport Academy of Sciences, Educational Work at the Museum of, Paper by E. K. Putnam, 63; Lectures at, 106
- Detroit Museum of Art, Lectures at, 100
- Directory of Museums, Advisability of Publishing a, 33; Items for Incorporation in, 34
- Dorsey, G. A., Appointed to Committee on Affiliation with National Educational Association, 6; Member Committee on 2d Class Postal Rates, 7; appointed Chairman of Committee on 2d Class Postal Rates, 8
- Dyche, L. L., Remarks by, 22, 26, 46, 105
- Educational Museum of the Public Schools of St. Louis, Paper by C. G. Rathmann, 39
- Educational Work of the Davenport Museum, Paper by E. K. Putnam, 63; of the Charleston Museum, 49; of the Philadelphia Museums, 50, 52; of American Museum of Natural History, 55
- Emerson, Alfred, Paper on "A Plea for the Better Recognition of Christian Archæology," 139
- Exhibits, Arrangement of, 77, 98; Segregation of, 95; Cotton, 47; Educational Material from Foreign Countries, 44; of School Work, 44; for Teachers, 44; Traveling, 39, 52, 55; Permanent, of Museum Buildings, Fittings and Appointments, 132; Geological, at Field Museum, 134
- Fairbanks Museum of Science, Lectures at, 105
- Farrington, O. C., Paper on "Some Principles of Case Design," 110; on "The Geological Collections of the Field Museum of Natural History," 134
Remarks by, 22, 118
Appointed to Auditing Committee, 6
- Field Museum of Natural History, Geological Collections of, Paper by O. C. Farrington, 134; Plans for the New, 73; Resolution of thanks to, 131

Fox, W. H., Remarks by, 29, 31
 French, W. M. R., Remarks by, 30, 33, 92; Elected to Council, 57; Chairman, Committee on Free Art, 8; Chairman, Committee on 2d Class Postal Rates, 7; Chairman, Committee on Publication of Proceedings of Pittsburg Meeting, 10
 Fumigation, Paper by C. R. Toothaker, 119; in American Museum of Natural History, 124
 Gallup, Miss Anna B., Paper on "The Essentials of a Children's Museum Building," 84
 Remarks by, 51, 52, 70
 Garrett Biblical Institute, 144
 Geological Collections of Field Museum of Natural History, Paper by O. C. Farrington, 134
 Griffith, A. H., Remarks by, 27, 28, 100, 105, 106
 Gruber, F., Notice of Death, 5
 Head, F. H., Remarks by, 28
 Heredity as a Museum Subject, 11
 Higinbotham, H. N., Address of Welcome, 60; Remarks by, 79
 Holland, W. J., Chairman, Committee on Affiliation with National Educational Association, 6; Chairman, Committee to Secure Benefits of Carnegie Foundation, 7; Member Committee on 2d Class Postal Rates, 7; Resolution of thanks to, 10; Elected President, 57
 Hutchinson, Charles L., Address of Welcome, 1
 Illinois State Museum of Natural History, Lectures at, 104
 Indian Trails, Mapping of, 21, 22
 Ives, Halsey C., Appointed to Committee on Program, 6

Jenkins, L. W., Remarks by, 21
 Kansas, School Museums in, 26; Historical Society, Work of, 22
 Kaows, Survey of, 22
 Koehler, Robert, Paper on "Some Ideas on the Founding of an Art Museum," 125
 Kurtz, C. M., Remarks by, 32
 Lectures, Do they Pay? 99; Sunday, 106; at Philadelphia Museums, 53; at Detroit Museum, 100; at Illinois State Museum, 104; at Chicago Academy of Sciences, 104; at American Museum of Natural History, 102, 107; at Fairbanks Museum, 105; at Davenport Museum, 106; at Art Institute of Chicago, 107
 Lescher, Theodore, Demonstration of Plans of New Field Museum of Natural History, 74
 Letson, Elizabeth J., Remarks by, 21
 Library, Reference, in Art Museums, 129; For Teachers, 44; in new Field Museum Building, 77
 Logan Museum, Beloit College, Wis., 24
 Lucas, F. A., Response to Address of Welcome, 2; Member Committee on 2d Class Postal Rates, 7; Remarks by, 36, 91, 107, 116, 118, 119; Elected Vice-President, 57; on "Do Museum Lectures Pay?" 99
 Lumière Autochrom Process of Color Photography, Paper by F. D. Maisch, 58
 Maisch, Fred. D., Paper on "Lumière Autochrom Process of Color Photography," 58

- Map Collections at Field Museum of Natural History, 136
- McGee, W. J., Member Committee on Affiliation with National Educational Association, 6
- McIlvaine, Miss M., Remarks by, 19
- Members, In Attendance at Chicago meeting, 3; Active, 149; Life, 149; Sustaining, 57, 156; Conditions of becoming, 146; Charter, 149
- Meyers, Ira B., Remarks by, 50, 51, 71
- Milwaukee Public Museum, Addition to Building, 93; Invitation to Inspect, 125
- Miner, Roy W., Remarks by, 27, 55, 90, 102, 106, 107, 124
- Minneapolis, Establishment of Art Museum in, 125
- Museums and Pedigree Cultures, 11; Museums, Art, on Founding of, 125; Children's Essentials for Building of, 84; Cleaning of, 81, 98; Directory of, 33; Educational Work of, 39, 49, 50, 52, 55, 63; Flooring of, 81, 96; Function of, 1; Lectures at, 53, 99, 100, 104-107; Libraries in, 44, 77, 129; Membership of, 106; Permanent Exhibit of Buildings, Fittings and Appointments of, 25, 132; Principles of Architecture of, 73, 93; Principles of Case Design in, 110; School, 26, 54, 69; Small, Field of, 23, 26-28; Ventilation of, 80, 97; Visits of Teachers and Classes to, 51, 65, 69, 87, 92
- National Educational Association, Committee on Affiliation with, 6
- Natural History Survey, of the Chicago Academy of Sciences, Paper by F. C. Baker, 15; of Pennsylvania, 20
- Nebraska Historical Society, Work of, 21, 99
- Officers of the American Association of Museums, vii; Officers elected, 56
- Ortmann, E. A., Remarks by, 20, 124
- Peabody Museum, Local Collections of, 21
- Pedigree Cultures and Museums, Paper by C. C. Adams, 11
- Philadelphia, Invitation to Meet in, 93; Invitation Accepted, 93
- Philadelphia Museums, Designated as Depository for Permanent Exhibit of Museum Buildings, Fittings and Appointments, 133; Fumigation in, 119; Lectures at, 53; Traveling Collection from, 52
- Photography, Color, Lumière Autochrom Process of, 58
- Physics, Loan Apparatus for Illustration of, 51
- Postal Rates, Committee on, 7
- Pratt, W. H., Educational Work at Davenport Museum, 64, 68
- Program, Committee on, 6
- Publications, Natural History Survey of Chicago Academy of Sciences, 15; of Association, 10, 33
- Putnam, E. K., Paper on "The Educational Work of the Davenport Museum," 63
Remarks by, 69, 70, 106
- Rathmann, C. G., Paper on "The Educational Museum of the Public Schools of St. Louis," 39
Remarks by, 45, 46, 47, 48, 49, 50, 51, 52

Rea, P. M., on "Advisability of Publishing a Directory of Museums," 33; Appointed Chairman of Committee on Museum Directory, 38; Appointed to Committee on Program, 6; Elected Secretary, 57; Remarks by, 32, 47, 48, 49, 54, 99, 105, 118, 119, 123, 133
 Reports of Committees, 8-10; of Secretary, 5; of Treasurer, 6, 148
 Resolutions Adopted, 131, 133

Santa Fé Trail, Charting of, 22
 Schools, Public, 26, 39-56, 63, 69
 Science, Separate Sessions of Art and, 6, 29
 Secretary, Report of, 5
 Skiff, F. J. V., Elected 2d Vice-President, 57; Remarks by, 10, 28, 30, 61, 73
 Specimens, Durability of in Traveling Collections, 46, 50
 St. Louis, Educational Museum of the Public Schools of, Paper by C. G. Rathmann, 39

Talmage, J. E., Remarks by, 71
 Taxidermists, Secretiveness of, 58
 Teachers, Information for, 47; Library for, 44; Methods of

Using Traveling Collections, 50, 53, 54; Preparation of, for Visiting Museums, 70, 92; Study Exhibits for, 44; Visits to Museum, 51
 Toothaker, C. R., Paper on "Fumigation," 119
 Remarks by, 50, 54, 87, 123, 124
 Traveling Collections, 39, 52, 55
 Treasurer, Report of, 6, 148
 Votes of Sustaining Members, 57

Ward, H. L., Paper on "Some Principles of Museum Architecture and Associated Details," 93
 Remarks by, 32, 36, 58, 89, 117, 181, 119, 124
 Appointed to Committee on Program, 6
 Elected to Council, 57
 Wilson, W. P., on "Advisability of Establishing a Permanent Exhibit of Museum Buildings, Fittings and Appointments," 132; Elected Treasurer, 57; Remarks by, 19, 27, 30, 33, 37, 38, 46, 47, 49, 52, 54, 55, 92, 105, 106, 124, 133

Zierden, Alicia M., Remarks by, 50

PROCEEDINGS
of the
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Vol. III

1909



**PROCEEDINGS
OF THE
AMERICAN ASSOCIATION OF MUSEUMS**

Vol. III

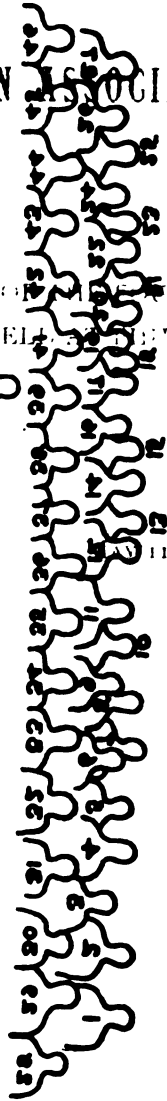
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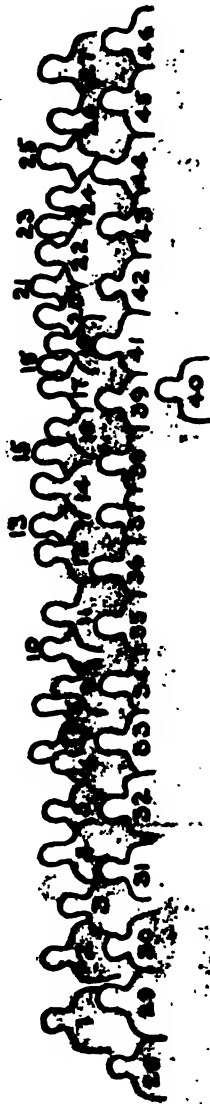


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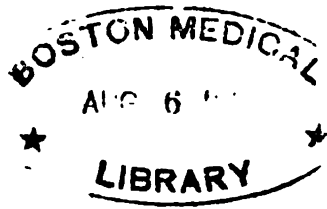
PROCEEDINGS
OF THE
AMERICAN ASSOCIATION OF MUSEUMS

RECORDS OF THE FOURTH ANNUAL MEETING
HELD AT PHILADELPHIA, PA.

MAY 11-13, 1909

CHARLESTON, S. C.

1909



EDITED BY
PAUL M. REA, SECRETARY
THE CHARLESTON MUSEUM
CHARLESTON, S. C.

THE WAVERLY PRESS
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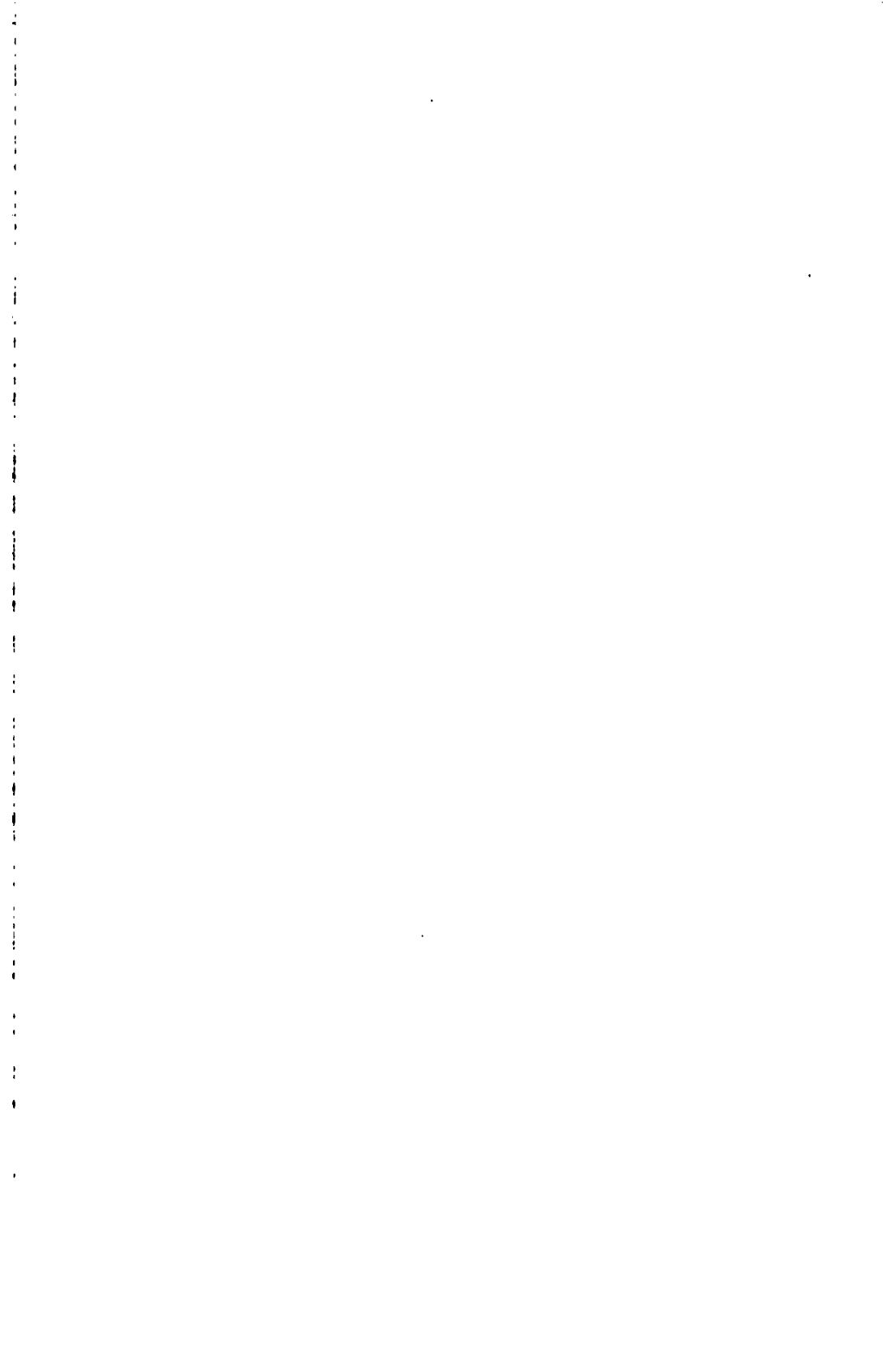
1909-1912

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CONTENTS

Photograph taken at the Philadelphia meeting.....*Frontispiece*

Officers of the American Association of Museums..... v

Session of Tuesday, May 11, Morning

| | |
|--|----|
| Roll of attendance | 1 |
| List of new members | 4 |
| Report of the Secretary | 7 |
| Coöperation between museums, by W. J. Holland | 9 |
| Coöperation among college museums, by Daniel S. Martin | 14 |
| The need of coöperation among museums, by Edwin A. Barber .. | 20 |
| The Staten Island Museum, by Charles Louis Pollard | 25 |

Session of Tuesday, May 11, Evening

| | |
|--|----|
| New methods of making relief maps and plaster casts, by Hermon C. Bumpus | 32 |
| The insect pests of museums, by C. T. Brues | 33 |

Session of Wednesday, May 12, Morning

| | |
|--|----|
| Suggestions for an educational exhibit of mollusks, by Frank C. Baker | 56 |
| Educational work of the Philadelphia Museums, by Charles R. Toothaker | 60 |
| The history of commerce in museums, by Wilfred H. Schoff | 64 |
| The adaptation of a library to a commercial and economic museum, by John J. Macfarlane | 67 |
| Photographic enlarging methods, by Fred D. Maisch | 72 |

Session of Wednesday, May 12, Afternoon

| | |
|---|----|
| The educational work of the Buffalo Society of Natural Sciences in coöperation with the public schools, by H. R. Howland .. | 74 |
|---|----|

Session of Wednesday, May 12, Evening

| | |
|---|-----|
| The planning and fitting of exhibition rooms, especially picture galleries, by W. M. R. French | 84 |
| Museums of art and the conservation of monuments, by Benjamin Ives Gilman | 87 |
| The desirable projection of art museums as suggested by the desirable classification of art libraries, by William H. Goodyear | 93 |
| The training of curators, by Mrs. Cornelius Stevenson | 115 |

Session of Thursday, May 13, Morning

| | |
|---|-----|
| The archæological atlas of Ohio, by William C. Mills | 120 |
| Problems of modernizing an old museum, by Witmer Stone... | 122 |
| Exhibition cases without shelves, by Frank C. Baker | 128 |
| A device for exhibiting fadable minerals, by O. C. Farrington .. | 130 |
| Some new points in coin case construction, by E. E. Blackman | 134 |
| Popular versus scientific arrangement of museum exhibits, by J. E. Talmage | 139 |
| A survey of state natural history museums, by A. R. Crook ... | 141 |

Appendix

| | |
|------------------------------|-----|
| Constitution..... | 148 |
| Report of the Treasurer..... | 150 |
| List of members..... | 152 |
| Necrology..... | 161 |

| | |
|-------------|-----|
| Index | 162 |
|-------------|-----|



PROCEEDINGS
OF THE
Fourth Annual Meeting
OF THE
American Association of Museums
HELD IN PHILADELPHIA, PA.

May 11 - 13, 1909

SESSION OF TUESDAY, MAY 11

Morning

The opening session was called to order at the Pennsylvania Academy of Fine Arts, by President William J. Holland, director of the Carnegie Museum, Pittsburgh, Pa.

The roll was called by Secretary Rea and the following is a list of the members present, with the institutions represented by them.

ROLL OF ATTENDANCE

- Mr. Thomas L. Austin, Public Museum, Erie, Pa.
Mr. Frank C. Baker, Chicago Academy of Sciences, Chicago, Ill.
Dr. Edwin Atlee Barber, Pennsylvania Museum, Philadelphia, Pa.
Mr. Herbert H. Brimley, North Carolina State Museum, Raleigh, N. C.
Dr. Arthur Erwin Brown, Academy of Natural Sciences, Philadelphia, Pa.
Mr. Stewardson Brown, Academy of Natural Sciences, Philadelphia, Pa.
Dr. Hermon C. Bumpus, American Museum of Natural History, New York.
Mr. T. L. Comparette, Numismatic Collection, U. S. Mint, Philadelphia, Pa.
Mr. Adolphe B. Covert, University of Cincinnati Museum, Cincinnati, O.
Dr. A. R. Crook, Illinois State Museum of Natural History, Springfield, Ill.
Dr. Carlos E. Cummings, Buffalo Society of Natural Sciences, Buffalo, N. Y.

- Mr. Earl Douglass, Carnegie Museum, Pittsburgh, Pa.
Mr. George Francis Dow, Essex Institute, Salem, Mass.
Dr. Carl H. Eigenmann, Indiana University, Bloomington, Ind.
Dr. Oliver C. Farrington, Field Museum of Natural History, Chicago, Ill.
Mr. Wm. M. R. French, Art Institute of Chicago, Chicago, Ill.
Miss Anna B. Gallup, The Children's Museum, Brooklyn, N. Y.
Mr. Benjamin I. Gilman, Museum of Fine Arts, Boston, Mass.
Mr. Robert Glenk, Louisiana State Museum, New Orleans, La.
Mr. George P. Goll, Philadelphia Museums, Philadelphia, Pa.
Mr. William H. Goodyear, Brooklyn Institute Museums, Brooklyn, N. Y.
Dr. G. B. Gordon, Free Museum of Science and Art, Philadelphia, Pa.
Miss Delia I. Griffin, Fairbanks Museum of Natural Science, St. Johnsbury
Vt.
Dr. Milton J. Greenman, Wistar Institute, Philadelphia, Pa.
Mr. George T. Hastings, Philadelphia Museums, Philadelphia, Pa.
Mr. Samuel Henshaw, Museum of Comparative Zoology, Cambridge, Mass.
Dr. W. J. Holland, Carnegie Museum, Pittsburgh, Pa.
Mr. S. F. Houston, Department of Archaeology, University of Pennsylvania,
Philadelphia, Pa.
Mr. Henry R. Howland, Buffalo Society of Natural Sciences, Buffalo, N. Y.
Mr. L. W. Jenkins, Peabody Museum, Salem, Mass.
Mr. Otto E. Jennings, Carnegie Museum, Pittsburgh, Pa.
Mrs. Otto E. Jennings, Carnegie Museum, Pittsburgh, Pa.
Mr. Charles W. Johnson, Boston Society of Natural History, Boston, Mass.
Mr. Henry W. Kent, Metropolitan Museum of Art, New York City.
Mr. Frederic A. Lucas, Brooklyn Institute Museums, Brooklyn, N. Y.
Mr. Fred D. Maisch, Philadelphia Museums, Philadelphia, Pa.
Dr. Daniel S. Martin, Charleston Museum, Charleston, S. C.
Miss Mabel W. McIlvaine, Metropolitan Museum of Art, New York City.
Prof. William C. Mills, Ohio State Archaeological and Historical Society,
Columbus, Ohio.
Mr. Roy W. Miner, American Museum of Natural History, New York City.
Mr. E. L. Morris, Brooklyn Institute Museums, Brooklyn, N. Y.
Prof. Edward S. Morse, Peabody Museum, Salem, Mass.
Mr. S. R. Morse, New Jersey State Museum, Trenton, N. J.
Mr. Thomas L. Montgomery, Pennsylvania State Museum, Harrisburg, Pa.
Miss Clara N. Perine, Wistar Institute, Philadelphia, Pa.
Mr. Albert Hastings Pitkin, Hartford, Conn.
Dr. Henry A. Pilsbry, Academy of Natural Sciences, Philadelphia, Pa.
Mr. Charles Louis Pollard, Staten Island Association of Arts and Sciences,
New Brighton.
Mr. Sydney Prentice, Carnegie Museum, Pittsburgh, Pa.
Mr. C. G. Rathmann, Educational Museum, St. Louis, Mo.
Mr. Paul M. Rea, Charleston Museum, Charleston, S. C.
Mr. John G. Rothermel, Wagner Free Institute of Science, Philadelphia.
Mr. Boyd P. Rothrock, Pennsylvania State Museum, Harrisburg, Pa.
Mrs. Boyd P. Rothrock, Pennsylvania State Museum, Harrisburg, Pa.
Miss Cornelia B. Sage, Buffalo Fine Arts Academy, Buffalo, N. Y.

- Mr. Joseph A. Santens, Carnegie Museum, Pittsburgh, Pa.
Mr. Geo. H. Sherwood, American Museum of Natural History, New York City.
Mr. Wilfred H. Schoff, Philadelphia Museums, Philadelphia, Pa.
Mr. Frank H. Severence, Buffalo Historical Society, Buffalo, N. Y.
Dr. Henry Skinner, Academy of Natural Sciences, Philadelphia, Pa.
Mr. Witmer Stone, Academy of Natural Sciences, Philadelphia, Pa.
Mrs. Cornelius Stevenson, Pennsylvania Museum, Philadelphia, Pa.
Dr. J. M. Stotsenberg, Wistar Institute, Philadelphia, Pa.
Dr. James E. Talmage, Deseret Museum, Salt Lake City, Utah.
Mr. Charles R. Toothaker, Philadelphia Museums, Philadelphia, Pa.
Mr. C. H. Townsend, New York Aquarium, New York City.
Mr. John E. D. Trask, Pennsylvania Academy of Fine Arts, Philadelphia.
Mr. B. Meade Wagenseller, Philadelphia Museums, Philadelphia, Pa.
Mr. H. P. Whitlock, New York State Museum, Albany, N. Y.
Dr. W. P. Wilson, Philadelphia Museums, Philadelphia, Pa.
Miss Alicia M. Zierden, Pennsylvania State Museum, Harrisburg, Pa.

President Holland.—"I have the pleasure of presenting to you our host of the morning hour, Mr. John E. D. Trask, secretary and manager of the Pennsylvania Academy of Fine Arts, a time honored and most useful institution. He will welcome us on behalf of the scientific and artistic interests of this good old city."

Mr. John E. D. Trask.—"Mr. President, Ladies and Gentlemen, Members of the American Association of Museums: On behalf of the museums of Philadelphia and of those other institutions which will so greatly benefit by your presence, and especially on behalf of this venerable academy where first we meet, it is my privilege and my great pleasure to bid you real and hearty welcome.

"You will recall that since our city's founder first held conference with the Indians, with happy result, Philadelphia has been preëminently the city of conventions. The Continental Congress and the Constitutional Convention both found inspiration here, and less than a decade ago, almost within a stone's throw, there met the convention which first nominated for national office that eminent gentleman who now awakes the echoes of Africa for the future enrichment of our great national museums. So, I shall hope some day to tell my children, when this Association shall have become even a greater agency for good than now it is, that not the wonder city by the Hudson, nor the iron giant where next you met, nor yet the home of the great west wind could give you full sense of your power; but that in the City of Brotherly Love you first fully sensed the lesson of that real coöperation without which your labor will be in vain.

"During your stay here you will visit our museums, our libraries and our galleries of art; you will learn that in the dissemination of knowledge, in the education of both the senses and the intellect, Philadelphia has always had an earnest interest. You will be told, for we take great pride in it, that since the days of Franklin and of West, we have organized the first association in America for the study of natural history. We have established and maintained the first American art academy, we have published the first daily newspaper on the Western Hemisphere, and, knowing the needs of your own various institutions, you will thank us for having established the first mint for the coinage of United States money. Not only in America are we known but through all the world, wherever men exchange their commodities with other nations, our Commercial Museum has earned respect.

"So you find us in some pride of accomplished work, yet quite aware that the prophecy has been fulfilled that 'Many shall run to and fro and knowledge shall be increased.' From the great store of knowledge which you bring to us we ask a tithe. If in anything we have begun well, help us to its fulfilment. If there be ways in which our aid will serve you it is yours for the asking.

"There is a little truth, I am afraid, in the anecdote of the good Philadelphian who when eating snails in a neighboring city bemoaned the fact that he never had them at home. 'Why' said his host, 'I thought your city full of snails!' 'Oh yes! it is,' was the reply, 'but we really cannot catch them.'

"Ladies and Gentlemen, in the spirit of fullest hospitality we offer to divide with you our snails. Help us to make the capture."

In the absence of the Mayor, who was to make an address of welcome, the Secretary then read the list of names approved for membership by the Council since the last annual meeting.

NEW MEMBERS

Active Members

Miss Helen J. Aitkin, Assistant, Brooklyn Institute Museums, Brooklyn, N. Y.

Mr. Thomas L. Austin, Curator, Public Museum, Erie, Pa.

Mr. Ellsworth Bethel, President, Colorado Academy of Science, Denver, Col.

Mr. Herbert H. Brimley, Curator, North Carolina State Museum, Raleigh, N. C.

- Mr. Stewardson Brown, Academy of Natural Sciences, Philadelphia, Pa.
Dr. Carlos E. Cummings, Secretary, Buffalo Society of Natural Sciences.
Mr. R. G. Fuller, Assistant in Anthropology, Peabody Museum, Cambridge, Mass.
Mr. George P. Goll, Assistant, Philadelphia Museums.
Mr. Joseph Grinnell, Director, Museum of Vertebrate Zoology, University of Cal., Berkeley, Cal.
Mr. A. O. Gross, Taxidermist, University of Illinois Museum, Urbana, Ill.
Mr. Henry R. Howland, Superintendent, Buffalo Society of Natural Sciences, Buffalo, N. Y.
Mr. Charles L. Hutchinson, President Board of Trustees, Art Institute, Chicago, Ill.
Miss Florence N. Levy, Editor Art Annual, 546 Fifth Ave., New York City.
Miss Mary T. McAlister, Curator of Museum of Drexel Institute, Philadelphia, Pa.
Mr. H. L. Madison, Curator, Park Museum, Providence, R. I.
Dr. Daniel S. Martin, Honorary Curator, Dept. of Geology, Charleston Museum, Charleston, S. C.
Mr. William McIntosh, Curator, Natural History Museum, St. John, N. B.
Mr. Paul C. Miller, Walker Museum, University of Chicago.
Dr. Charles F. Millsbaugh, Curator of Botany, Field Museum of Natural History, Chicago, Ill.
Prof. John Pickard, University of Missouri, Columbia, Mo.
Mr. Albert H. Pitkin, Associate of the Wadsworth Athenæum, P. O. Box 867, Hartford, Conn.
Mr. Samuel H. Ranck, Librarian, Grand Rapids Public Library.
Mr. John G. Rothermel, Superintendent, Wagner Free Institute of Science, Philadelphia.
Dr. A. G. Ruthven, University Museum, Ann Arbor, Mich.
Miss Cornelia B. Sage, Buffalo Academy of Fine Arts.
Mr. Frank H. Severance, Secretary, Buffalo Historical Society.
Dr. Henry Skinner, Academy Natural of Sciences, Philadelphia, Pa.
Prof. Frank Smith, Curator, University of Illinois Museum, Urbana, Ill.
Mrs. Cornelius Stevenson, Assistant Curator and Lecturer, Pennsylvania Museum and School of Industrial Art, Philadelphia, Pa.
Prof. John K. Strecker, Jr., Baylor University Museum, Waco, Tex.
Mr. John E. D. Trask, Secretary and Manager, Pennsylvania Academy of Fine Arts, Philadelphia, Pa.
Mr. B. Meade Wagenseller, Assistant, Philadelphia Museums.

Sustaining Members

- Academy of Natural Sciences of Philadelphia.
Essex Institute, Salem, Mass.
Museum of the College of Liberal Arts, Northwestern University, Evanston, Ill.
St. Louis Museum of Fine Arts.
Wadsworth Athenæum, Hartford, Conn.

Hon. John E. Reyburn, Mayor of Philadelphia, was then escorted to the front of the room by Mr. Trask.

President Holland.—"Ladies and Gentlemen: It is a great thing to be the governor of one of our American commonwealths, but I sometimes think it is even a greater, a more honorable, and certainly a more difficult position to be in charge of the complicated affairs of one of our great municipalities. Among those who are presiding at the present day, with great dignity and success, over one of the greatest of American cities, is one whom I have the pleasure of presenting to you this morning, His Honor, The Mayor of Philadelphia." (*Applause.*)

Hon. John E. Reyburn.—"Mr. President, Ladies and Gentlemen: I am afraid the Chair is a little too complimentary; at the same time, I wish you to feel that we are very glad to have you here, and to have you see Philadelphia, as well as to discuss the important subjects which bring you together.

"We regard you as friends, interested in many things in which we are interested, rather than as guests, who are not expected to criticise, and we hope that you will feel at perfect liberty to point out whatever you see here which may be changed for the better. We in Philadelphia are interested in the progress and better development which is going on throughout the world at the present day, and we know that you can give us ideas and thoughts which will be of great benefit. We are, therefore, especially glad to greet you this morning.

"It is a bright and beautiful day and, although you have some duties indoors, we hope to show you before the end of the week the park system and the projected improvements of Philadelphia. All those things which pertain to the government of the city are open to you, and we hope that you will carry away a better impression of us from your visit here.

"I thank you again, Ladies and Gentlemen, and Mr. Chairman, for the opportunity you have given me this morning, and I hope you will have a pleasant and profitable visit in Philadelphia." (*Applause.*)

President Holland.—"I will call on a representative of the great body of careworn toilers of New York to respond to Your Honor's kind words of welcome: Mr. Frederic A. Lucas, First Vice-President of the Association."

Mr. Frederic A. Lucas.—"Mr. Chairman: Your Honor, let me correct a little statement of our worthy President. I am not from New York, I come from one of the boroughs that have been annexed to New York, of which some one has said, 'In the midst of life we are in Brooklyn.' (*Laughter.*)

"A year ago it was my privilege to respond to the address of welcome in one of the newest of our great cities, and today it is my privilege to respond to an address of welcome in one of our oldest cities. Philadelphia has more museums than any other city in the United States. It has a greater variety of museums and more working museums, if I may so speak, and so it is eminently fitting that we should meet in this great city.

"The purpose of our Association is thus set forth: 'The object of this Association shall be to promote the welfare of museums, to increase and diffuse knowledge of all matters relating to them, and to encourage helpful relations among museums and those interested in them.' It seems to me that there can be no better way to encourage these helpful relations than by a bond of fellowship among the many members of our many museums, and a glance at our program shows the extent of the welcome extended to us and the variety of kindnesses to be shown us, a welcome truly worthy of the City of Brotherly Love.

"On behalf of the Association collectively and on behalf of its members individually, I will return our sincere thanks to His Honor, the Mayor, as representing this great municipality, and to Mr. Trask as representing the institutions of art and science." (*Applause.*)

Secretary Paul M. Rea then read the following report:

REPORT OF THE SECRETARY

The Secretary begs to report that the Association has received thirty-two new Active Members and five new Sustaining Members, and has lost by resignation, one, and by death, four Active Members, during the past year. The membership is now 228 against 168, as printed in the *Proceedings* for 1908.

The Secretary regrets to record the death of the following Active Members:

Charles Chauncy Mellor, President of the Committee on the Museum, Carnegie Institute, Pittsburgh.

Dr. Charles M. Kurtz, Director of the Buffalo Academy of Fine Arts.

George Corliss, Assistant in the Art Institute of Chicago.

Prof. Otis Tufton Mason, Head Curator of Ethnology in the U. S. National Museum.

The routine correspondence of the Association has been carried on during the year, and has more than doubled as compared with the previous year.

The second volume of the *Proceedings* of the Association has been edited and published by the Secretary.

As directed by the Association, at its last meeting, the Secretary has undertaken the compilation of a directory of museums of art, history, and science in North and South America. A circular requesting information for this purpose was prepared in consultation with several members, and has been mailed during February, March, and April, to about 640 museums. Replies have already been received from 117. From these returns, an account of each institution will be prepared and submitted in manuscript to the museum for revision before printing. The Secretary takes pleasure in announcing that the Buffalo Society of Natural Sciences has offered to publish this directory for the Association, as one of its Bulletins, in commemoration of the meeting in Buffalo in 1910.

Respectfully submitted,

PAUL M. REA, *Secretary*.

On motion duly made and seconded, the report of the Secretary was approved.

The following resolution, in reference to the deceased members was offered by Dr. James E. Talmage, president of the Deseret Museum, Salt Lake City, Utah, and unanimously adopted:

Be it resolved, That the American Association of Museums learns with sorrow of the deaths announced, and that the Secretary be requested to express to the family of each of the deceased members, the condolence and sympathy of the Association; and

Be it resolved, That the announcement of death and a brief biographical sketch of the deceased members be published as a necrological record in the next volume of the *Proceedings*.

Brief accounts of the life and work of the deceased members were then given as follows: on the late Dr. Charles M. Kurtz, by Mr. Henry R. Howland, superintendent of the Buffalo Society of Natural Sciences; on the late Mr. George Corliss, by Mr. Wm. M. R. French, director of the Art Institute of Chicago; on the late Prof. Otis T. Mason, by Mr. Frederic A. Lucas, curator-in-chief of the Brooklyn Institute Museums; and on the late Mr. Charles C. Mellor, by President W. J. Holland, director of the Carnegie Museum, Pittsburgh.

In the absence of Dr. W. P. Wilson, the reading of the Treasurer's report was deferred. President Holland then spoke as follows:

President Holland.—"It seems proper for the Chair to express to the

Association his most cordial thanks for their act at Chicago in choosing him for the position he now has the honor of attempting to fill. This action, taken at a time when he was absent in a foreign land, was particularly pleasing."

Reports of committees were called for, and Dr. W. J. Holland, as chairman of a committee to secure for museum officials the benefits of the Carnegie Foundation, submitted an informal report, expressing doubt as to the possibility of effecting the purpose for which the committee was appointed. On motion of Dr. Oliver C. Farrington, by whose suggestion the committee was originally appointed, the committee was discharged with the thanks of the Association.

In the absence of Dr. George A. Dorsey, chairman of the committee to secure second class postal rates for occasional publications of museums, no report was submitted, and the committee was continued.

Mr. Wm. M. R. French, chairman of the committee on free art, reported progress, and the committee was continued.

The report of the Treasurer¹ was then read by Dr. W. P. Wilson, and referred to an auditing committee,² consisting of Messrs. F. C. Baker, G. F. Dow, and O. C. Farrington.

President Holland.—"Dr. Wilson, I know I voice the sentiments of the Association when I say that we are under great obligations to you for the kind, faithful, and self-denying manner in which you have cared for the matters entrusted to you. We know that we have in you one of the most loyal and disinterested friends of the movement which we represent."

Mr. Wm. M. R. French then took the chair, while President Holland read a paper as follows:

COÖPERATION BETWEEN MUSEUMS

The number of museums already established in America is great and is destined in future years to become greater. The movement for the establishment of museums may be said to be as yet in its infancy. As instruments for popular instruction and for the elevation of taste and culture, museums are quite as efficient as libraries: the method of teaching by means of objects being frequently even more effective than the method of teaching by books.

¹ For the report of the Treasurer, see Appendix.

² For the report of the Auditing Committee, see p. 71.

Permit me to say at the outset of my remarks that it is one of the delightful features of the work in which we are engaged that a spirit of fraternity and mutual helpfulness has always prevailed among the museums of America. If there be rivalries, they are generous in their character. These relations of cordiality and friendship are destined, we believe, to continue forever.

It is the object of the brief remarks which I am about to make to endeavor to point out some of the ways in which museums may be mutually helpful to each other.

Museums may aid each other by the mutual communication of knowledge obtained by experience. This Association exists fundamentally for this purpose. Our annual gatherings, bringing together the representatives of the various museums of America, at which questions of policy and administration are freely discussed, are calculated to broaden the views and stimulate the efforts of those who participate in the discussions, and to create personal friendships which would not otherwise be begotten. I confess that to me it is a delightful experience from time to time to meet my brethren who are engaged in earnest efforts to promote the good work for the advancement of which we all stand. It seems to me therefore that one of the first things which the museums of America should endeavor to encourage is the maintenance in abiding strength of this Association itself, by which those who are engaged in the practical work of museums are brought together and permitted to see each other eye to eye and face to face. Every museum in America should become a Sustaining Member of this Association and should endeavor to be represented at our annual gatherings by one or more delegates.

Speaking for the institution which I have the honor of representing, I desire to say that it is the judgment of our trustees that it is a wise thing to annually expend a small part of the funds under their control in order to make it possible for a certain number of the staff of the Carnegie Museum to be present at these gatherings. We take account in our budget as one of the items which is to be annually considered, the sending of a delegation from the Carnegie Museum to the meetings of the American Association of Museums. We feel that we are profited; that those who attend these meetings return inspirited, with larger views, and a more thorough determination to achieve success.

A second method in which museums are already coöperating, and in which in coming years they may more fruitfully coöperate, is in freely according to each other facilities for study and research. I wish to bear testimony in this connection to the magnanimity and kindness which

prevails among the scientific men of America, especially as represented in the museums of the country. Mutual helpfulness seems to be the aim and ambition of our brotherhood. And this is true, I may say, not only of the museums of America, but of the museums of the world. When there is need of counsel or of access to collections or literature for purposes of study, the brotherhood of scientific men is always ready to give aid. However we may differ in our interpretation of facts and in our position as specialists in particular cases, the spirit of mutual helpfulness prevails among us.

Another way in which museums may aid each other, paradoxical as it may appear, is by letting each other alone. Let me explain myself. When an individual or an institution has addressed itself to a given task, and that fact becomes known, its priority of attempt should be respected as much as we naturalists are given to respecting priority in nomenclature. To translate what I have said into concrete terms, I claim that it is the duty of scientific men and of scientific institutions when a certain work has been undertaken not to interfere with or unnecessarily duplicate that work. This is more particularly true in the domain of research. The field of investigation is so wide, the problems set before us are so numerous, the territory to be explored has been so little cultivated, that it appears to me to be a waste of the energies at our command for more than one individual or institution to undertake to do precisely the same thing. The museums of America in their work of scientific research should by common consent agree to select those problems which they may respectively be best fitted to explore, whether because of the possession of resources or because of their location, and in the investigation of such problems they should mutually respect each other and not attempt in the spirit even of a generous rivalry to oppose each other.

This leads me to speak of the great importance of attention on the part of each institution to its peculiar local problems. It seems to me that the different museums of America will each be doing the most for the advancement of science in general when, so far as the work of scientific research is concerned, they bend their energies to the exact study of the natural phenomena of the several regions in which they are located. There will thus be acquired a minute acquaintance with the region in which each museum is located and this knowledge will become available for the use of the entire scientific world.

A notable beginning in this direction as you are all aware has been made in Chicago, and when a little more than ten years ago the Carnegie Museum was established in the city of Pittsburgh and the present speaker

was called to plan for its administration, it was resolved that we would make the study of the upper valley of the Ohio from every point of view one of the prime objects of our activity, and we have been for the last ten years studying the flora, the fauna, and the geology of the region with care. In this work we have had the advantage of the services of several acute observers and indefatigable collectors and, when it is concluded, I trust that the knowledge which we shall have gained of this important territory will be as full and exact as the requirements of the most careful and diligent student could demand. Dr. Arnold E. Ortmann with characteristic enthusiasm has prosecuted the work of research along the river systems with a view to preserving for the future a record of the life which once teemed in those rivers, but which is rapidly disappearing owing to changing conditions. I may say that the work was begun none too soon. Mr. Jennings with equal assiduity has been engaged in studying the flora, which like the fauna has already in part perished. Dr. Raymond is engaged in working out the stratigraphy and invertebrate paleontology of the region, and has learned many interesting things, which had heretofore eluded those who were officially engaged in the various geological surveys which have been made from time to time. A diligent band of collectors has assembled the mammals, the birds, and the insects of the territory. Only recently I have been able to publish an initial list of the lepidoptera of the region, prepared by Mr. Henry Engel, showing that there are within a radius of only a few miles of the city of Pittsburgh over seventeen hundred species belonging to this order of insects. I merely allude to these facts as concretely illustrating the manner in which a museum in a given locality may, if it will, explore the region, thus laying foundations for the broadening of our knowledge of the entire continent. The facts ascertained by us will gradually become available for the use of all.

And now being engaged in this important local work, I wish to say that I do not think that any one here would accuse me of maintaining a false attitude, if I should say that while we are doing this work, we should expect our brethren to regard what may be termed our territorial prerogatives. Where a museum possesses the means and the trained workers to thus carefully study a region, there should be no conflict directly or indirectly with its efforts. This is not said because of a desire in any sense to monopolize the field, but because of the desire to prevent an unnecessary and wasteful expenditure of means, which, viewing the work of the museums of America as a whole, are never in excess of the demands of legitimate work. One of the best ways in which museums may cooperate with each other is thus seen to be by letting each other alone.

Another method in which museums may coöperate with each other is in the exchange of duplicate material. In reference to this, very little need be said. The system of exchange between museums is well established and relations of exchange exist between almost all well organized museums.

The conduct of exchanges, while one of the most fruitful methods of increasing the value of collections, is always attended with a certain amount of labor and considerable expenditure of time. It also calls for a large degree of careful kindness and consideration. In order to successfully exchange material the spirit of mutual concession and good nature must prevail. In an experience involving relations of exchange with other naturalists covering forty years, I can recall but one case in which a difficulty arose, and that was in dealing with a man who has long since joined the great majority, with whom I think every specialist, who was brought into relation with him, expected to have, and did encounter, trouble. He belonged to that very unfortunate class, fortunately small in number, who regard everything which passes through their hands as having value beyond diamonds and rubies. The collection he made, which is now the property of one of the great museums of this country, was largely built up of material which he obtained from brother naturalists by cajolery or browbeating, and I have reason to believe in some cases by the wilful abstraction of specimens from the cabinets of fellow-workers, who were so unwise, until they found him out, as to give him access to their collections, bits of which disappeared in his pockets or in his hat. Men like this fortunately are not common.

A service in which museums of art may profitably engage is the exchange of collections or parts of collections for temporary display. The museums of art have an advantage in this matter over those museums which are devoted to the natural sciences. It is easier to send pictures and statuary from one place of exhibition to another, than to send natural history collections, which are often liable to very great injury by shipment from place to place.

Another method in which museums may coöperate effectively is in the exchange of the services of competent men. If it has been found advantageous for the universities on both sides of the Atlantic to exchange the services of distinguished professors, why should not the same method to a certain extent and within certain limits exist between museums? Not every museum is able to maintain a large staff of carefully trained scientific experts. One institution may have a man who excels in one direction; another may possess a man who excels in another direction.

It is desirable and I believe it is feasible, for museums to exchange the services of experts, or allow them to have for a little time roving commissions. Referring again to our personal experience in the Carnegie Museum, I may say that we have been happy in being permitted to make arrangements with one of our great universities for the employment, for a portion of his time, of one of the most eminent ichthyologists in America, who has consented to work up our collections for us. Here is a concrete illustration of the matter concerning which I am speaking. It is not possible or desirable for this distinguished man to leave the position which he occupies, but it is possible for him to devote a portion of his time to the work which we desire to have done, and this he has agreed to do. A similar arrangement in another department of study is about to be made. Such arrangements have been made in times past and are being made by a number of other museums in this country. I hold that this is an important and useful form of coöperation which should be encouraged and to some extent relied upon.

I conclude my remarks as I began them, by alluding to the extremely friendly and helpful spirit which prevails among our American museums, large and small, and by asserting the belief that it is as we thus stand together in harmonious relations that the great interests which we represent may best be conserved.

Dr. Daniel S. Martin, honorary curator, department of geology Charleston Museum, Charleston, S. C., then presented the following paper:

COÖPERATION AMONG COLLEGE MUSEUMS

The American Association of Museums has entered upon a very large field of useful and much needed service, and should have the earnest support of all who are interested in the preservation and the utilization of scientific or art material for the benefit of the public—whether as teachers, curators, or collectors. The work of the Association thus far has related principally to the larger museums, but there is also an extensive field in connection with the numerous body of smaller museums of science belonging to the colleges, distributed all over the country, in which the influence of such an Association as this can be of great value. The title of this paper, "Coöperation among College Museums," expresses the end and

the method which I have in view, but I must preface and accompany these points with a few general remarks.

There are hundreds of colleges and similar institutions scattered throughout the United States, in all of which some science is taught, and some equipment provided, more or less adequate for illustration thereof. But many of these institutions are in small places, some of them quite remote, and the contents of their museums are known only to their own students and faculty. To the public and to students of science they are largely inaccessible and almost wholly unknown. While many of these collections are small and trivial, some are large and valuable, and all are apt to contain some material of special interest, local or otherwise, that is like buried treasure. I speak from experience on this subject, having taken an interest therein for years and having visited and examined the collections at many colleges, both in the North and in the South. All over the country there are these small museums, unknown and unrelated to each other and to the scientific world, and yet often containing interesting and valuable material, unappreciated even by its possessors. It is certainly much to be desired that this condition of affairs should be improved and with this object I am addressing you to-day.

The ordinary college museum need not be large. As has been well said by Professor A. C. Moore, of the University of South Carolina, what is really important for the purposes of the average college is a small but well-selected exhibit of characteristic specimens, to illustrate to students the principal objects in any branch of science which they are studying, thus supplementing and explaining the statements and figures of the text-book or the lecturer, and making them real in the student's experience. It should also give practical familiarity with the natural objects which students are likely to encounter, not only those rare and remote, of which he reads and hears—so far as they are important and so far as it has the means to procure them—but also it should illustrate as fully as possible the natural objects of the region where it is situated, the common minerals, rocks, fossils, and the fauna and flora of the locality.

This latter aspect should be emphasized and every institution should be encouraged and stimulated to make systematic and thorough local collections in all departments. In this manner, much valuable material may be secured at little or no expense, and important data, as to distribution and the like, be obtained and recorded. To some extent, indeed, this has been done but the lack of coöperation between institutions and the fact that, as a rule, no one of them knows what even its neighbor possesses, have prevented any systematic or important general result from

what has actually been accomplished. This association might well organize some plan for the improvement of these conditions. The publication of the Museum Directory, now in preparation, will be the first great step in this direction and will supply the first pressing need of a basis of information as to the contents of our numerous museums.

This will be only a starting point, however. There should next be some concerted policy, some division of labor, among the different colleges of a region, or of a state, whereby great advantages might be secured. I hold that every museum should seek to gather and exhibit scientific material with reference to some definite object, and not merely in a general and miscellaneous way. Of course, every museum needs, and should have, general collections, to give to visitors and students some idea of the richness and variety of objects comprehended in the great divisions of nature, and to enable them to become acquainted by actual observation with the plants and animals of distant lands and the minerals and fossils of remote and peculiar localities. So far as this is attempted or realized, however, there is of necessity a certain sameness in the contents of museums, and one is to a large extent like another. The same is equally true of libraries and art collections, also.

But apart from this general work, every museum should aim at a speciality of its own—some branch or department in which it should have, and be known to have, a distinctive character, and to possess material and afford opportunities that cannot be found elsewhere. The first and most obvious form in which this aspect of a museum's work can and should be cultivated, is in the matter of local collections; the illustration, with utmost fullness, of the fauna and flora, the minerals, rocks, and fossils of the neighborhood.

Aside from this, however, the direction which this specialization should take will naturally be determined by various conditions. Among these may be noted a few of the most obvious, such as (1) the particular taste and capacity of the professor in charge—whether a geologist, a botanist, or the like; (2) the situation of the institution as regards peculiar facilities in any department; (3) the possession already of valuable collections gathered, purchased, or presented in time past. Any one of these conditions may well determine the particular lines along which the institution should develop its museum.

A notable illustration of this general principle, under the second head, is found in Amherst College, where in addition to an excellent general museum, there is the great and celebrated collection of reptilian footprints from the Trias of the vicinity—a collection unique and un-

paralleled, and known to be such throughout the world. Few institutions indeed have such an opportunity, or anything like it; but something of a similar kind can be attempted by many, on a humbler and smaller scale of course, but along the same line of full and careful illustration of local features.

The possession of collections formerly made or acquired, is a point which I wish to dwell upon in yet another aspect from that just referred to. Not only does it furnish a basis, and so indicate a direction, for further development, but it imposes an obligation thereto. The possession of a valuable collection in any department is in itself a trust, a heritage, from the past for the future, and involves a responsibility not only for its proper care and maintenance, but also, as far as possible, for its extension and improvement. This is an aspect which seems to be seldom recognized, but to my mind it is exceedingly important.

The collections acquired by an educational institution are not only a part of its equipment, but they are also a part of its history. They have been gathered or given, perhaps long since, by members of its faculty, by trustees, or by graduates, and express their interest in the institution, their love for it, and their desire and endeavor for its advancement. There is an element of sacredness in these collections therefore, which should never be overlooked or disregarded. And yet how rarely is this aspect recognized! Often no formal nor permanent record is kept of such acquisitions and, after some years, no one knows anything about them, save perhaps a vague tradition that such and such objects were collected or presented by "old Dr. So-and-so" years ago. The new professor moreover, coming to such an institution, too often seems to feel no interest in the historic relations of the material that he finds there, or in what may be called the personal aspect of it, as expressing and embodying the labor of those who have preceded him. Because it is not arranged or classified according to the latest views which he has studied, it has for him little, if any, value, and no claim on his interest. This is not right; it is an injustice to former laborers, who were as earnest in their time and with their opportunities, as any of their successors are, or can be, now. Of course their work must be revised and brought up to date, but this should be done with more recognition and respect than is frequently displayed. The historic element and the personal element in such possessions of any institution, ought to be honored and regarded by all who have to deal with them. I desire to press this point upon the attention of the members of this body, in the hope of arousing and developing a sentiment which seems to me highly desirable.

But, to return to my main subject, why should not the institutions of a given region—say perhaps of each state—arrange for some form of concerted action in the matter of their scientific collections? As I have already said, each must have certain generally similar features, but each should also aim to develop especial excellence along certain particular lines, determined by some one of the causes to which I have alluded. When the Museum Directory has been published, it will be possible to know, for the first time, what each institution possesses. Then, by some system of conference, each institution could select some one or more departments in which it could specialize most readily and advantageously. Thus the whole field of scientific illustration could be in some fair measure covered by the several institutions of a state, each taking some portion as its own share, instead of attempting to do a little in all, or in many, departments. I have in mind here, the state of South Carolina, and though I will not mention any of its institutions by name, yet I can see how easily and how well such a “division of labor” could be arranged among some of them, to the advantage of all. The same principle, I believe, could be applied to almost any state in the Union. So far as I know, this suggestion has never been made before. It may be impracticable, but I do not think so. I desire in any case to present it for the consideration of this body.

Two things at once suggest themselves, in anything like such a system of coöperation among college museums. One of these is obvious and familiar—the exchange of duplicate specimens. There is a vast amount of unused and even wasted material of this kind, that, by some well-considered system of exchange, could be made valuable and instructive. The other point is one of some delicacy and difficulty: it relates to the retention, by an institution, of specimens which are not duplicates, and which are not of real value or use where they are, but yet might be of service elsewhere. If the principle of division of labor, above suggested, were to be adopted, this question would assume a more definite form. It is unfortunate, to say the least, that a few rare or peculiar specimens should be buried in some out-of-the-way place—mere unused curiosities—when they would have a tenfold value in connection with other material of the same character, with which they properly belong. The proposal to transfer such specimens from a collection where they have little value to one where they would have much, would involve some difficult questions. It would interfere to some extent with the historic and personal element that I have already spoken of as belonging to college collections and it would interfere more seriously with the legal

superstition of some trustees—who know little and care less about the value or utility of scientific specimens, but who hold strenuously to the idea that nothing that has ever come to an institution must be permitted to leave it, no matter how little use is made of it or how little care is taken of it, or how valuable it might be elsewhere, a very “dog in the manger” policy. Both of these obstacles, however, could be avoided by some system of loan or deposit, agreed upon between institutions, instead of actual transfer.

In closing this paper, with its few and perhaps novel suggestions, I can but express the hope that it may lead to some improvement in the character and the relations of our many college museums, now so disconnected, so little known, and often so little prized and so poorly cared for. I would urge upon the scientific professors in our colleges, moreover, the obligation and the responsibility which rests upon them for the better care and the higher appreciation of the scientific collections belonging to their institutions, as a part of both their history and their equipment, as a heritage and as a trust. Nay more; the college cabinets should be a matter of pride among all the friends of the institution, and among the students. The possession of a well-selected and well-arranged college museum, and its excellence in some special department, recognized among other institutions, ought to awaken at least as much interest and pride among any body of intelligent young men as the winning of a ball game or a “cane-rush.” It should seem so, unless the *humanities* in education have been wholly trampled out by the *brutalities*. Perhaps this is one direction in which the American Association of Museums may serve the cause not only of science but of civilization.

Mr. Frederic A. Lucas (Brooklyn Institute Museums).—“It has always been my feeling that type specimens should be put where they will do most good, and I would like to give a concrete instance: Dr. Allen sent to the American Museum the types of *Spermophiles* of the Brooklyn Museum, instead of retaining them where they would have been unrelated to other specimens.”

Secretary Rea.—“Although I agree entirely with the desirability of concentrating type specimens in the larger collections, I well remember the impression made upon me in my college days by the type specimen of *Dromatherium sylvestre*, the earliest mammal known in North America. This was the only important type specimen owned by the College, and would undoubtedly be of greater service to students in

some larger museum, but in this small college it had an important function in impressing upon students the importance of type specimens."

Dr. Oliver C. Farrington (Field Museum of Natural History, Chicago).—"There are many excellent college museums; almost every college passes through a spasm of giving, but the enthusiasm soon lapses, and we all know that the average college collection becomes dingy and commonplace, is uncatalogued, and is housed in a room which is hot in summer and cold in winter. Such museum collections are seldom widely known. One of the finest collections of meteorites in the world is contained in such a museum, but is so incompletely known that it failed entirely of mention in a catalogue of meteorites of the world, prepared by a German author. I feel sure that there is much important material hidden away in college museums, and if college officials could be brought to realize, by such statements as have been made in these papers, the educational value of their museum material, there would be a great improvement in the care of such collections."

Mr. H. P. Whitlock (New York State Museum, Albany).—"Complications sometimes arise in determining the field of activity of museums by their territorial position. In my own state, New York, we have in New York City the American Museum of Natural History, covering the entire United States, in fact the two Americas; the New York State Museum in Albany, whose special field is the State of New York; and in Buffalo the Academy of Natural Sciences; each with a particular function, and it seems to me that any attempt to make a territorial division can only result in friction."

Mr. Charles R. Toothaker (Philadelphia Museums).—"There is a sentiment among all the speakers that it is of value to scientists to know what good specimens are in existence, and one of the important things that our Museum Directory is to do is to disseminate information as to where the good collections are. It has been pointed out that there are good collections in colleges as well as in museums and there are also good collections in private hands, and it might add greatly to our interest to have the names of private collections also added."

In the absence of the author, the following paper, by Dr. Edwin A. Barber, director of the Pennsylvania Museum, was then read by title:

THE NEED OF COÖPERATION AMONG MUSEUMS

Ten years ago coöperation among American museums was but a dream of the future. Each institution was a law unto itself, in consequence of

which the trend was toward stagnation and constantly narrowing policies, and the accumulation of reproductions, forgeries and other undesirable material. Six or eight years ago our slumbering museums commenced to show signs of increasing activity, and gradually a spirit of friendly rivalry began to be developed. This awakening was largely brought about by the introduction of museum bulletins which extended the influence of their respective institutions beyond the narrow confines of their immediate communities. The petty jealousies, which once marked the management of local museums in this country, are rapidly disappearing before the development of a broader and more liberal policy whereby inter-institutional relations are now being established. This great change in sentiment has resulted in the organization of the American Association of Museums. American museums have, therefore, already shown a more liberal spirit than those abroad. European museums are, as a rule, still unprogressive and self-centered, and disinclined to render assistance or furnish information. Shining exceptions are those of Hamburg, Dresden, and Berlin. Letters of inquiry addressed to others are almost invariably ignored. Our own experience has been that out of some hundred letters asking for enlightenment on certain points and requesting an exchange of publications, less than ten per cent have elicited replies of any sort, notwithstanding the fact that they were written in both English and foreign languages.

Almost every museum in this country possesses at least one recognized expert in some particular field of research, but no single institution includes on its staff specialists in all of the branches represented by its collections. The field of American research in the arts and sciences, however, is so comprehensive that competent experts can be found in our institutions of learning whose combined knowledge should cover almost the entire ground. It only remains to discover who these specialists are, and to enter into a mutual agreement whereby a general interchange of courtesies may be brought about. For several years the Pennsylvania Museum has maintained a Bureau of Identification through which thousands of objects belonging to those departments in which the members of the staff have specialized, have been passed upon for the benefit of other museums and collectors, receiving in exchange valuable assistance in other branches of art.

The advantages of a general interchange of services between museums will be three-fold. First, each museum, whose staff does not include experts in certain branches of art or science, will be enabled to procure the advice, and possibly the periodical presence, of specialists in those

departments, without the expense of maintaining a large permanent corps of assistants. In the second place, by the establishment of inter-institutional relations, any museum may arrange to send material to another for identification. Finally, this mutual interchange of services will prove to be of the greatest benefit to specialists themselves, bringing them into close touch with the collections relating to their respective departments in the principal museums, thus familiarizing them with all similar material in this country, and greatly increasing their knowledge in their special lines of research. The experience of the Pennsylvania Museum in this direction has been so satisfactory that I am deeply impressed with the importance of securing the joint action of all institutions represented by this Association. I have sounded the directors of some of our foremost museums in regard to their willingness to enter into some mutually advantageous arrangement whereby an interchange of expert services may be brought about, and in almost every instance have received a favorable reply. To accomplish this, it seems to me the first step will be to ascertain from each institution what specialists are attached to its staff. The second will be to learn in what special departments these museums are willing to render assistance to others. Finally, it will be necessary to reach an understanding on which such interchange of courtesies may be consummated.

In suggesting a plan of coöperation, I have taken the ground that it should be possible to find experts somewhere in this country whose special knowledge extends to practically every department of science or industry with which our museums are concerned. Many eminent authorities in various branches of science and art, connected with American museums and learned societies, could be named, but I shall not present a list here. Among the subjects in which our specialists have attained distinction, however, may be enumerated ethnology, zoölogy, ornithology, entomology, paleontology, conchology, botany, geology, and mineralogy; painting and sculpture; Japanese, European and American ceramics; Egyptian, Persian, Chinese, Japanese, Greek, and Roman art; American archæology, enamels, lacquers, metal work, Oriental carpets, glass, European prints, arms and armor, musical instruments, and basketry. In these departments it should be possible to arrange a plan for determining and classifying material for any institution needing assistance. There are, however, other branches of human industry in which coöperation may be more difficult, such as engraved gems and textiles, but there are, doubtless, students in this country who have given some attention to these subjects also. It remains to ascertain who they are.

The Pennsylvania Museum has, at various times, been invited to join forces with other museums in this country for the employment of European authorities in certain departments of art. In one case it was ascertained that the professional fees and expenses of such an expert, for one month, would amount to about \$3000, an average of \$100 per day. It was proposed that these institutions should combine and arrange an equitable allotment of expenses. This would mean an expenditure of \$600 each by five museums, to secure six days of service, or \$1000 each by three institutions, for ten days. This would terminate the transaction and at the expiration of the time the specialist would return to Europe. The institution with which I am connected took the ground that the \$600, or \$1000, or whatever the amount might be, could be used to much better advantage if the interested museums should combine to employ American experts, or even to send the most promising American specialist abroad to study his subject thoroughly. The advantages of this plan would be manifold. A trained expert would thus be permanently secured for this country, whose services would be available from time to time, at a greatly reduced cost, for those museums entering into such an agreement.

It is the manifest duty of public museums to render every assistance possible to each other. All should work toward the same end, the diffusion of good art among the people at large, as well as among those in their respective communities, not merely for the purpose of gaining the foremost place at the expense of the less favored. The most progressive institutions of learning today are permitting their eminent specialists to hold chairs and deliver lectures in other institutions. It is not unusual to see the names of the same scholars in the printed lists of lecturers in several colleges. This practice is increasing with the broadening of educational methods, and the exchange of lecturers between some of the American and European universities has been arranged for the present year. Why should not the same plan be adopted by our principal museums? If a student, after many years of special investigation, becomes a recognized authority in any particular department of knowledge, why should he not be permitted to extend his field of usefulness by giving at least a small portion of his services to other institutions, say one day a month, two or three days in each quarter, a week during the year, or any reasonable period of time which could be mutually agreed upon. Such an arrangement could be entered into without detriment to those museums to which experts are attached. The benefit to all the museums concerned, as well as to the specialists themselves, would be incalculable.

In many other ways American museums can work together to advance the cause of education. Every museum accumulates from time to time duplicate specimens which cannot be exhibited, but which would be most acceptable in filling up gaps in the collections of other museums. Redundant material which is not needed by one museum would be most useful to another. In the case of the Pennsylvania Museum, the retired duplicates now in storage would be sufficient to stock a new museum, and the same condition doubtless exists in other museums. The adoption of a system of exchange would be beneficial to all concerned.

The disposition of unexhibited material may be carried a step further. It frequently happens that certain museums which are not in a position to offer an exchange, can use to advantage collections or groups of objects which have been retired by others. This material may have been acquired under such conditions that it cannot be disposed of by sale or gift, but there is usually nothing to prevent its being transferred for an indefinite period as a loan to be exhibited in the name of the lender. The Pennsylvania Museum retains control of several such collections which are at present deposited in other institutions on loan and can be recalled should a contingency arise at any time making such action necessary. This emergency, in some cases, may never occur, so that the loans may be considered in effect permanent. By this plan the borrowing museum and its constituency may enjoy the use of the material, while the legal owner is relieved of the necessity of providing storage room for its safe keeping.

Let us work together with a view to the mutual strengthening of our educational exhibits, the correction of attributions, the revision of descriptive labels, the elimination of forgeries, the presence of which always tends to cast a reflection upon the fitness of curators in charge. A great European authority, who visited this country a few years ago, was greatly impressed by the large number of forgeries and reproductions he found in all of the art museums which he visited. Observation forces us to admit the unpleasant truth that there is probably no art museum in America which is entirely free from these worthless deceptions, and it is often true that those museums which claim the most for their collections possess the greatest number of imitations, posing as genuine antiques. This is particularly true of ceramics. It was recently stated by a French newspaper that the sale of spurious Sevres porcelain alone nets the counterfeiters in Paris 16,000,000 francs each year, and yields the retail dealers in Europe and America the enormous sum of 48,000,000 francs, or \$9,600,000 annually. Almost every American tourist who

returns from abroad brings with him some of these worthless fabrications, many of which, sooner or later, find their way into our public repositories. There is scarcely a museum in this country that does not contain imitation Capo-di-Monte, Sevres, and Lowestoft porcelain, and forgeries abound in furniture, glass, textiles, classical antiquities and other articles. The presence of a single forgery in a public collection is more injurious to the reputation of a museum than incorrect attributions or defective classification.

Every museum is strong in some special department where others are weak, and vice versa. The equalization of all departments and the weeding out of spurious examples can only be effected by a combination of interests. No single museum can accomplish this unaided. The field is too extensive to be thoroughly covered, under present conditions, by the staff of any one museum in this country. Only by general coöperation will it be possible to reach that state of efficiency which will insure the dissemination of truth among the people, for the public naturally looks to the museums to furnish authoritative information on those subjects which their collections are intended to illustrate.

If these suggestions should meet with the approval of the Association, I would suggest the appointment of a committee to confer with the authorities of the different museums here represented, looking to the formulation of a plan whereby such coöperation may be effectively established.

President Holland.—“We will now hear a paper by Mr. Charles Louis Pollard, curator-in-chief of the Staten Island Association of Arts and Sciences.”

THE STATEN ISLAND MUSEUM

On May 23 the museum which I have the honor to represent will have completed the first year of its existence as a public institution. Before speaking more particularly of its work and of its scientific collections, let me outline the history of the organization to which it owes its foundation.

In September, 1881, a group of about twenty residents of Staten Island, including both professional and amateur biologists, organized the Natural Science Association of Staten Island. The following year a permanent meeting room was offered to the new association by the trustees of what

was then the village of New Brighton and for fourteen years monthly meetings were held in Village Hall.

The charter members entered earnestly into the spirit of the organization and local collections in all branches of biology were contributed as the foundation for a museum, although at that time, few, if any, of the members dreamed of the possibility that this museum would ever become more than a private study collection.

In 1885 the Association was incorporated, its object, as stated in the charter, being, "to collect and preserve objects of natural science and antiquity, with special reference to local matters, and to diffuse correct knowledge in regard to same, by means of publications, meetings, and public lectures."

Like all scientific organizations, the Association passed through a period of depression and inertia, its membership declined, its meetings were poorly attended, and about ten years after it had been founded it was threatened with speedy dissolution. But the splendid courage and tireless energy of a few hard workers prevented this disaster, and even succeeded in maintaining, with tolerable regularity, the *Proceedings* whose publication had commenced in 1883. A particularly happy choice of a new president about this time caused the tide to turn, and in 1896, when the Association finally vacated Village Hall to take up quarters in the new Staten Island Academy, the membership had reached high-water mark, and the collections were expanding into a museum of ample proportions and considerable value. An extensive exchange of the *Proceedings* had also resulted in the building up of a fair sized library, containing a number of complete sets of periodicals. In view of these conditions it was not many years before the Academy room became too crowded for use except as a store room.

The movement for wider activities and broader scope in the affairs of the Association, looking toward the establishment of a public museum, began to take shape in the summer of 1904. On May 17, 1905, the Association was re-incorporated as the Staten Island Association of Arts and Sciences. The charter was liberal in its provisions, authorizing the Commissioners of the Sinking Fund to provide quarters for the Museum in the newly erected Borough Hall, and empowering the Board of Estimate to appropriate annually a sum not exceeding \$10,000 for care and maintenance. The President of the Borough, under authority from the Sinking Fund Commissioners, assigned a room on the third floor of Borough Hall to the Association, and in July, 1907, the collections were moved from the Academy into their new quarters. The same year an

appropriation was made for furnishing and equipping the room, and within a short time contracts were let for the exhibition cases and other furniture. As the entire work of preparing and installing exhibits, as well as attending to administrative duties, fell to the task of the curator, with such occasional volunteer assistance as he could obtain from members of the Association, it was some months before the Museum was in a condition to be opened to the public. On May 23, 1908, however, the formal exercises were held, the Museum being accepted on behalf of the city by Borough President Cromwell, and the principal address being delivered by Dr. F. A. Lucas, of the Brooklyn Institute, who has, from the inception of the Museum, been our constant friend and has afforded incalculable assistance to us in many ways.

The idea of a museum on Staten Island, and above all, a museum located in Borough Hall, is something that requires time for our people to grasp. After the crowd of the first few days, drawn largely by curiosity, the attendance fell off during the hot summer months, as might have been expected. From September on, however, the attendance began slowly but steadily to increase, until in December and January a constant average of nearly thirty persons daily visited the museum. Yet it has only begun to reach the general public, for it is an almost daily experience that we receive visitors who have never before heard of the institution. The majority of our visitors are, of course, children, mostly those in the medium grades of the public schools. As a rule, they are more quick to grasp the salient features of the educational exhibits than their elders. The Staten Island public has not yet caught the museum idea. Our distance from the great public institutions of Manhattan and Brooklyn has prevented that close acquaintance and interest in museum work which is felt by the people of those boroughs, and to many of our citizens who have not kept pace with the great strides in museum economy the word still means simply an assortment of curios. It has been our earnest effort to educate the public mind in this respect, and there are indications that our labors are not being wasted.

The Museum occupies a room about 100 feet long by 25 feet in breadth, a small area at one end being partitioned off to serve as an office and work room. By far the larger proportion of the collections are in storage, as there is neither floor space nor case room for their proper display. The show cases are of two types; an all glass upright, six feet in height by one foot deep, provided with adjustable plate glass shelves; also a flat table case, two and one-half by five feet, carrying two deep drawers beneath for study series of specimens. These cases, being units, can be

placed together in any combination, and the uprights are sufficiently low in height to permit easy inspection of articles on the topmost shelf. The wood work is weathered oak. The south wall of the room is occupied for its entire length with built-in book shelves, containing the Association library, which now numbers some 4,000 volumes.

The collection of antiquities naturally excites the most local interest. This includes a number of distinctive Staten Island relics, such as the last of the old milestones which marked the post road to Philadelphia, the lock and hinge from the door of the Old Red Jail, and the bell from the old Court House. Many relics of revolutionary battlefields are also displayed. In ancient documents and manuscripts the museum is remarkably rich, and it has nearly complete files of various Staten Island newspapers that have long since passed out of existence. Closely connected with these exhibits are the various antiques to be seen in the Art Loan Collection, embracing china and metal ware, old costumes, hand woven garments and other family heirlooms. These loan exhibits are changed at frequent intervals. Indian occupancy of the Island is illustrated by the most complete collection of local archeology in existence. Neither the State Archeological Museum at Albany, nor the corresponding department of the American Museum of Natural History can boast of so many Indian implements from Staten Island as those gathered together in our museum. There is also an excellent collection of implements illustrating the life and culture of the Iroquois Indians of Central New York, a recent gift.

Ornithology is represented by three cases containing the resident and migrant birds of Staten Island. This is supplemented by a series of nests and eggs of the more familiar breeding birds, and by colored plates, showing the bird life from month to month as it changes. Half a case is devoted to a special educational exhibit of birds' eggs, illustrating certain well known facts, such as the relation of shape, color and size to surroundings, patterns of coloration, etc. There are also two small cases, one of tropical American and one of European birds.

The collection of insects now includes nearly 2000 specimens, although few of these are on exhibition. A special case contains the Staten Island lepidoptera, while some of the more showy tropical butterflies are shown on the wall. Certain biological factors, as variation, mimicry, etc., are illustrated with entomological examples. An exhibit entitled, "Insect Architecture," including various types of nests made by hymenopterous insects, cocoons of silk worms, etc., is of special educational interest.

The Museum possesses a very large collection of shells, but few are on

exhibition, as the space they would occupy is needed for more important exhibits. The same may be said of the minerals, of which there are perhaps 2500 specimens.

The geological exhibits are of special value, as they have been carefully planned to illustrate not only the structural features and physiography of the island, but the mineral products and resources. It is in the possession of exhibits of this kind that the museum is slowly gaining ground, and attracting visitors of serious aims. The best indication of the good that is being accomplished along these lines may be found in the fact that our constant visitors are not, as might be expected, members of the Association or their friends, but are drawn from the general public;—the very class for which the Museum was established. And it seems to be a universal rule, in the experience of the officers in attendance, that whoever comes to scoff remains to praise.

Last winter the Museum undertook three courses of popular lectures for the benefit of the children. The experiment was a tentative one, but the results were so good that steps are now being taken to have these lectures made a regular feature of the winter season. The first course consisted of a series of four talks on the various divisions of the animal kingdom, illustrated by museum specimens. The next course was devoted to the general subject of winter protection and winter habits in birds, mammals, insects and plants. The final course included three lectures on the formation of rocks, on fossils, and on the early customs of the Raritan Indians.

In addition to its quarterly *Proceedings* the Association now issues monthly a one-page Museum Bulletin, containing accounts of interesting accessions and general information concerning the activities of the Association.

The city budget for the current year contains an appropriation for maintenance, and it is the hope of the officers of the Association that, as the museum expands and enlarges its sphere of influence, this appropriation may be increased to keep pace with the development. Ultimately we hope to have a building of our own, which shall house a museum proportionately as useful to Richmond Borough as are the magnificent institutions in Manhattan and Brooklyn to the people of our sister boroughs.

Dr. A. R. Crook (*Illinois State Museum of Natural History, Springfield*).—"I move that papers not presented when called for, shall go to the end of the program."

President Holland.—"A certain amount of discretion ought always to be allowed the presiding officers to arrange matters of program. The Chair would not like to be regarded as opposing a motion, but he would like to have it understood that the adoption of such a resolution will not prevent the exercise of discretion in individual cases."

The motion was then put to a vote and lost.

Mr. Frederic A. Lucas, of the Brooklyn Institute Museums, then demonstrated a poster prepared by the larger museums of New York City, upon the suggestion of Mr. Townsend, and displayed at various public places, for the purpose of conveying information concerning the museums of New York, what they contain, and how they can be reached. The poster was arranged by Dr. Kent of the Metropolitan Museum, and contained photographs of each institution in addition to a brief text. The poster elicited much favorable comment.

A vote of thanks to the officers of the Pennsylvania Academy of Fine Arts, for their courteous hospitality, was then adopted, and the meeting adjourned to inspect the Academy. The members were later conveyed by automobiles to the Pennsylvania Museum, in Fairmount Park, for lunch and an informal reception by the Board of Trustees and a committee of ladies. The Association was welcomed by Mr. Theodore C. Search, president of the Museum, as follows:

Mr. Theodore C. Search.—"Ladies and Gentlemen: The Pennsylvania Museum and School of Industrial Art extends its most cordial welcome and its hospitality to the visiting members of the American Association of Museums.

"The knowledge that some of you have acted as hosts on similar occasions and made others most cordially welcome at your own fire-side, reminds us that 'with what measure ye mete, it shall be meted unto you,' and we trust you will recognize that we are endeavoring to live up to the scriptural injunction.

"Let us congratulate ourselves that so many are gathered to honor and to advance the common interests. Recent years in museum work have brought larger recognition and increased responsibility, and also a greater understanding by the public of the sphere of museum influence.

"Haphazard arrangement of exhibits has given way to scientific placement. Idle curiosity has been supplanted, in large measure, by genuine study. The national life is indicated by the customs of the people and national proclivities may be judged by these customs and national progress may be outlined by successive creations of handiwork and skill properly arranged by the curator. In the museums, as no-

where else, we may obtain information concerning the people of the earth, their racial characteristics and proclivities, and if, as has been asserted and not denied, the proper study of mankind is man, then are our museums worthy of the most learned and scientific treatment.

"That you, in large measure, agree with this sentiment is sufficient to account for your presence on this interesting occasion and at the same time is a guarantee that these meetings will advance the general understanding of museum value, and more firmly establish their right to be more conscientiously considered, and to become the recipients of the benevolence of the various communities they represent.

"And now, a word as to our title—The Pennsylvania Museum and School of Industrial Art—which to some of you may seem somewhat complex. The great centennial movement of 1876 ushered in a period of wondrous art activity, and it pleased a number of the progressive people of our city to organize an effort to preserve many of the exhibits assembled. A charter was obtained to effect this purpose and a provision of that charter called for the maintenance of a school of art. The title sufficiently describes the kind of school intended.

"Such a school has been vigorously promoted along the lines of art and its application to industry. The museum and schools are each conducted by their own separate directors and committees, unity of interest being obtained and maintained through a common executive committee. The schools are located in the midst of our industrial activities but their inspiration is largely drawn from museum objects in all their great variety. To these schools you are all invited—any time suitable to your convenience will be agreeable to us.

"I trust your meeting may in a large way advance the welfare of the objects you all hold so dear at heart and that your stay with us may be a pleasant memory." (*Applause.*)

The afternoon was devoted to an inspection of the Pennsylvania Museum and the Zoölogical Garden, with an automobile ride through Fairmount Park.

SESSION OF TUESDAY, MAY 11

Evening

After listening to an organ recital in the main auditorium of the Drexel Institute, the evening session was called to order for the reading of papers, President Holland in the chair.

President Holland.—"Ladies and Gentlemen: Before we hear the illustrated papers of the evening, I have requested Dr. Bumpus, director of the American Museum of Natural History in New York, to present a matter in which I am sure we shall all be interested."

NEW METHODS OF MAKING RELIEF MAPS AND PLASTER CASTS

I wish to demonstrate a new method of making relief maps, which has been developed at the American Museum of Natural History under the necessity of turning out a number of maps on short notice. In making relief maps, the finished product is often somewhat disappointing. As you know, it is necessary to have a strictly horizontal surface, and the coloring of the water line with the brush is sometimes difficult to accomplish so as to produce an absolutely horizontal plane. We have obviated this difficulty in the following way: We first modeled the portions in relief on a sheet of glass. A metal mould was then taken from the model and inverted, so that all the elevations appeared as depressions, into which we packed plaster mixed with coloring matter. The surface was then carefully smoothed off, and a sheet of plaster of another color was then poured over the whole, producing a relief map all colored. No brush has touched this map, and if you pick away the mountains you will find them the same color all through. The water line is absolutely horizontal, and it is possible for a man to turn out half a dozen complete copies of this map in a day.

While discussing the use of plaster, I may also mention our experience in making a number of human figures of life size. We have found these rather expensive in the past. It is often necessary to pay more for a plaster man than a good many men are worth. We recently needed a number of these on short notice, and found the price of the average modeler exorbitant. We engaged a negro model and arranged a little room over a radiator, so that it could be made very warm. It was a charming climate for that gentleman; who, for a trifling consideration was willing to sacrifice his time for science. In that room we could use a paraffine spray of low fusing point, and so spray the model all over with paraffine. In that warm room the paraffine would bend, so that it made no difference if the model moved a little. When the model had been coated with paraffine, two or three attendants quickly covered him with plaster from head to foot, and by this method we were able to make six or eight life-size models in a single day with very little trouble.

In removing the plaster from the model, the usual draw strings are used, and the paraffine coating comes off with the plaster mould, from which it is easily removed, leaving the details of the skin clearly shown. A figure made by this method costs not over \$10 without coloring.

The following paper by Mr. C. T. Brues, of the Milwaukee Public Museum,¹ was then read by title:

THE INSECT PESTS OF MUSEUMS

Everyone engaged in the study, care, or arrangement of museum specimens of organic origin has at some time become painfully aware of the presence of museum pests. It may be first one, then another, but even in the best kept and most carefully guarded collections, the sporadic occurrence of varied insect pests is almost inevitable and it requires eternal vigilance to prevent them from obtaining a foothold so secure that they can be with difficulty exterminated. Collections once absolutely cleared from pests are subsequently besieged on all sides by stray specimens or by others brought in through the acquisition of fresh material already infested.

The present short consideration is intended to give a brief recognizable description of the more regular and important insect pests of museums together with such points concerning their life history and control as may be useful to the museum curator when he meets them in the course of his work. Between 15 and 20 species are included, and I believe that no generally abundant pest has been omitted, with the exception of some of the moths and beetles which infest such stored grain and cereal products as are often included in museum exhibits of a commercial rather than purely scientific nature. Indeed one could easily single out less than half a dozen species which cause nearly all of the actual damage to museum specimens in this country.

Many of the species have been associated with man from early antiquity and have thus through commerce become nearly cosmopolitan. Others of less wide distribution are continually being scattered broadcast, so that, except as affected by great extremes of temperature, the museum pest problem is destined to become more and more similar throughout the entire world.

¹Now of the Bussey Institution, Harvard University.

The precautions against the introduction of insect pests into museums have no doubt become so familiar to all members of the Association through experience that a summary of them here may possibly seem out of place. Fumigation of current accessions with carbon bisulphide or hydrocyanic acid gas is advisable and, of course, poisoning by arsenic, when possible, should follow. The latter substance has the advantage of offering permanent protection from future injury, while the preliminary fumigation will usually destroy all the pests present at that time. When possible, however, it should be followed by a period of quarantine in a warm place to detect the development of any insects not killed by the treatment, for if a fumigated and even poisoned specimen be introduced among older, unprotected specimens the insects will almost invariably migrate to them and start a colony or point of infestation which may rapidly spread. In fumigating, it is well to remember that the vapor of carbon bisulphide is heavier than air and will consequently penetrate best in a downward direction, while that of hydrocyanic acid is lighter than air, causing it to penetrate more rapidly upward. The use of white arsenic in some form of suspension or solution is preferable to that of corrosive sublimate since the latter is fugitive, gradually subliming and disappearing even at ordinary temperatures. Arsenic, however, as far as I am aware, is to all practical purposes as permanent as the specimens themselves, and on this account more suitable than any other poison in general use.

Practically all materials of organic composition are liable to damage by insect pests, although of course some classes of objects are especially susceptible to attack. The integument of animals in various forms, such as hair, wool, feathers, furs, skins, etc., and dried pinned insects usually require the greatest care, while objects of plant origin such as herbarium specimens are comparatively safe with but few precautions. Notable exceptions, however, are seeds and commercial starchy products, etc., which are very susceptible; even Cayenne pepper is one of the favorite foods of the cigarette beetle (*Lasioderma serricorne*).

GENERAL REMEDIES

The problem of readily exterminating colonies of insect pests once established in exhibit or storage cases, is one which often confronts us, and which sometimes presents great difficulties. However, as members of the Association already know, this matter has been advanced far toward a satisfactory solution by Mr. Chas. R. Toothaker, who has applied to museum work the methods of fumigation by means of hydro-

cyanic acid gas which have been shown by economic entomologists to have such a wide field of usefulness in various lines. The use of this gas is probably the most satisfactory and absolutely sure method yet devised, and, when applicable, has, I believe, everything to commend it.

Besides this, there are various other general methods of protection which are worthy of notice. Carbon bisulphide, as already mentioned, is often very suitable for fumigation, especially for small cases or drawers. It has the advantage of being non-poisonous to persons using it, and is very powerful in its effects on insect life. It has great penetrating power when applied or allowed to evaporate from above, but is of course extremely inflammable and explosive when in vapor form, being as easily ignited by a lighted pipe or cigar as by direct flame.

The use of naphthaline, preferably in resublimed form, is effective as a repellant for insect pests of all sorts, and when continually kept in small quantities among collections not hermetically closed is practically trustworthy in preventing the entrance of pests, to all of which its odor seems to be extremely distasteful. It is important to secure a good grade of properly sublimed naphthaline as much of the commercial product, for example, "moth-balls," usually contains a quite considerable amount of some hydrocarbon grease which, being left in cases after the slow sublimation of the naphthaline, will be absorbed by the wood, paper, or specimens with which it is in contact, thus doing almost irreparable damage. In practice, we have found in our own museum, that, in protecting our insect boxes, we cannot rely on purchased naphthaline cones for this reason, and have been compelled to prepare our own by casting the melted flake naphthaline in clay molds of appropriate size and form. Thus prepared, the cones may be left in the boxes until completely gone without fear of greasing the boxes. The presence of naphthaline tends to prevent the growth of insect larvæ, and although it is not probable that the amounts ordinarily used will normally kill the pests, it has the undoubted effect of slowing down or inhibiting their development as long as it remains. The use of creosote has been advised for the protection of insect cases by Dr. George W. Bock. He uses inverted thimbles containing a tuft of cotton saturated with creosote, attaching the thimble to the bottom of the box by means of a short pin soldered to the convex tip of the thimble.¹ This is said to be more satisfactory than

¹ Mr. W. P. Comstock has still more recently advocated the use of gelatine capsules, with the cap removed, and impaled on a pin, for holding the cotton containing the creosote.

naphthaline and more easily replenished, while the receptacles have the advantage of being light and less easily displaced by jarring.

In some special cases, as mentioned later, powdered pyrethrum or "Persian insect powder" is useful in destroying pests. This substance kills by contact and not through the alimentary tract, and must be fresh and in good condition for it weakens greatly with age and exposure to the atmosphere.

This short list probably includes all the remedies of general application, although, as will be seen from a reading of the second part of the present account, there are a few species against which special methods of procedure may be adopted.

The figures used as illustrations have been in great part obtained through the courtesy of Dr. L. O. Howard, chief of the bureau of entomology, who has loaned them for this purpose from the fine series of published drawings belonging to that department.

SPECIAL PART

Order Thysanura

The Silver Fish (*Lepisma saccharina* Linn.)

This is a very active wingless, worm-like insect of very primitive organization. It measures about 8 mm. or less in length, although it often appears much larger on account of its long antennæ and the three long anal filaments which nearly equal the body in length. The body is flattened below, convex above and tapers posteriorly. It is thickly clothed above with appressed, pale, shining, silvery scales which give to it a bright, glistening appearance. When in motion it darts rapidly about, much after the manner of a small cockroach.

The food of the silver fish consists of paste, dextrin, sugar, glue, paper sizing, etc., and the insects have the habit of gnawing over the surface of all sorts of objects in the preparation of which these substances have been used, thus marring their finish. Books and photographic prints are especially subject to their attacks. The former may have the lettering, leather, or paper removed from the bindings by the insects in their search for the paste or glue by which they are attached. In a similar way, pasted labels, photographic prints, etc., may be gnawed through in spots of irregular size and outline. The species shuns the light and does most of its damage in libraries where books are stored away on dark or seldom used shelves. Its presence is easily noticed if it is abundant by an

occasional scurrying individual which has been exposed to the light by the sudden removal of a volume.

The insect succumbs very readily to pyrethrum or it may be easily baited by soaking pieces of blotting paper in a thick starch paste to which

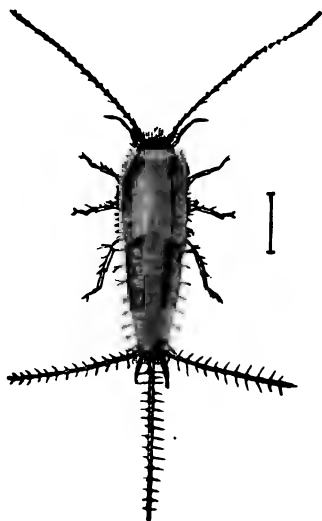


Fig. 1. *Lepisma saccharina* Linn. After Marlatt. Courtesy of the U. S. Bureau of Entomology.

a small amount of white arsenic has been added. This placed where they can find it will usually attract and poison them. In cases where this does not prove satisfactory, the addition of a small amount of glue will make it more effective.

Order Corrodentia

The Book Louse (*Troctes divinatoria* Müll.)

This little insect is probably the most diminutive museum pest with which we have to deal. It is a delicate, much flattened creature, scarcely a millimeter in length, almost a transparent pale yellow in color, with oval wingless body. Ordinarily it is most abundant on old volumes that are seldom used, but in museums it is very frequently seen hurrying about in insect boxes, especially those containing freshly pinned material. It is said to breed most rapidly in materials like straw, but probably

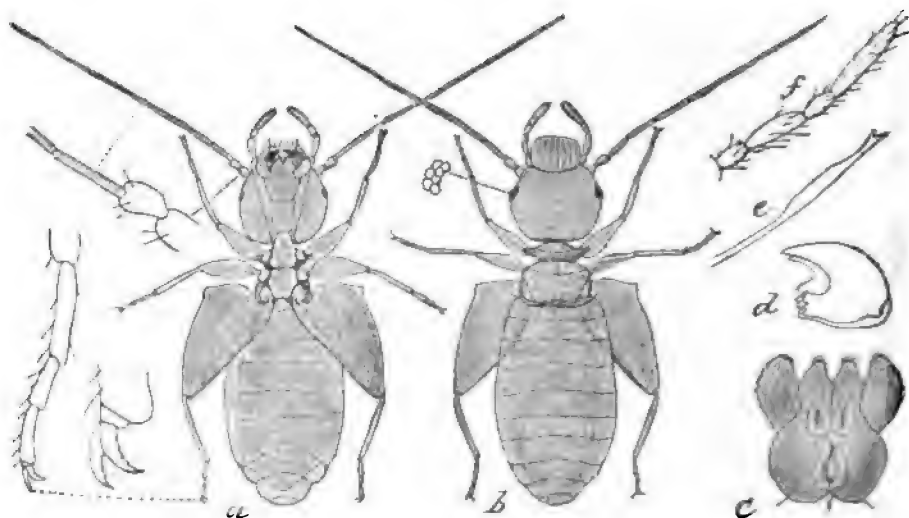


Fig. 2. *Troctes divinatoria* Fabr. a, adult from below; b, same from above; c, labium. f, maxillary palpus; d, mandible; After Marlatt. Courtesy of the U. S. Bureau of Entomology.

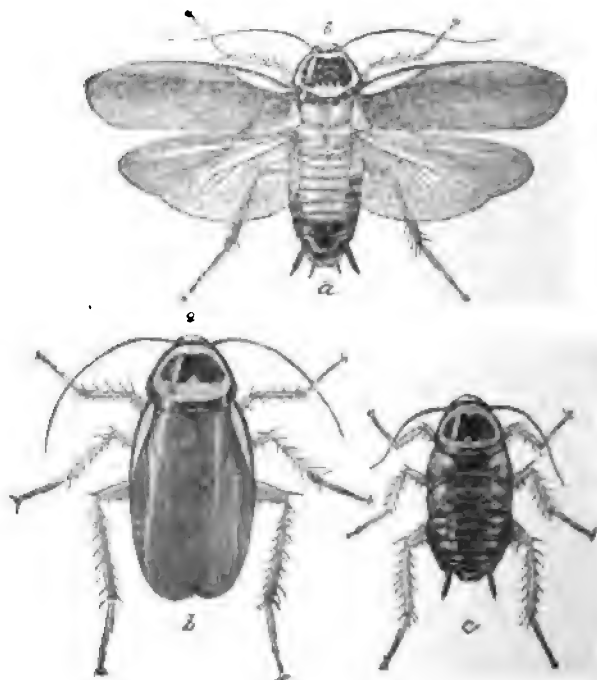


Fig. 3. *Periplaneta australasia* Linn. a, male with spread wings; b, female; c, nymph. Natural size. After Marlatt. Courtesy of the U. S. Bureau of Entomology.

never occurs in sufficient abundance in museums to cause actual annoyance or damage.

It is very susceptible to the effects of pyrethrum and easily kept out of insect boxes by the usual naphthaline or creosote.

Order Orthoptera

Cockroaches (*Periplaneta*, etc.)

Although the several common species of cockroaches which regularly frequent houses in the United States can hardly be classed as museum pests, they quite often appear in museum storerooms where they may do considerable damage.

The injury which they cause is due to gnawing on the surface of objects, such as bound books, to obtain the paste beneath, of which they are very fond. When their taste for starchy food cannot be satisfied, they may become practically omnivorous and damage articles of all sorts by rasping off patches of the surface covering. Fresh insects when placed to dry on setting boards are especially subject to their attacks.

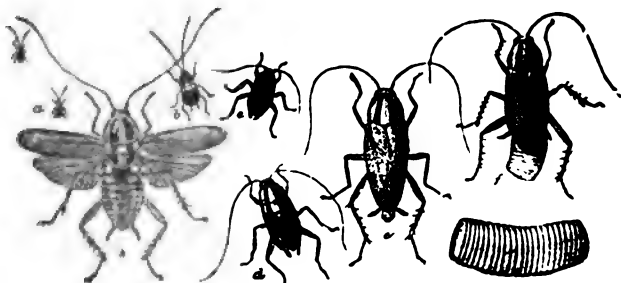


Fig. 6. *Blatella germanica* Linn. a, first stage; b, second stage; c, third stage; d, fourth stage; e, adult; f, adult female with egg case; g, adult with wings spread. After Riley. Courtesy of the U. S. Bureau of Entomology.

Order Isoptera

The Northern Termite (*Termes flavipes* Koll.)

The present species is the only one which occurs abundantly in most parts of the United States, and the one which causes nearly all of the damage in our country. Southward and into the tropics the number of species increases rapidly and they become extremely injurious to wood work of all sorts.

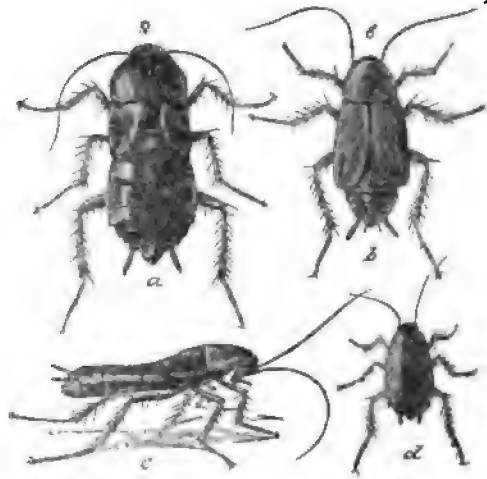


Fig. 4. *Periplaneta orientalis* Linn. a, female; b, male; c, side view of female; d, half-grown specimen. After Marlatt. Courtesy of the U. S. Bureau of Entomology.

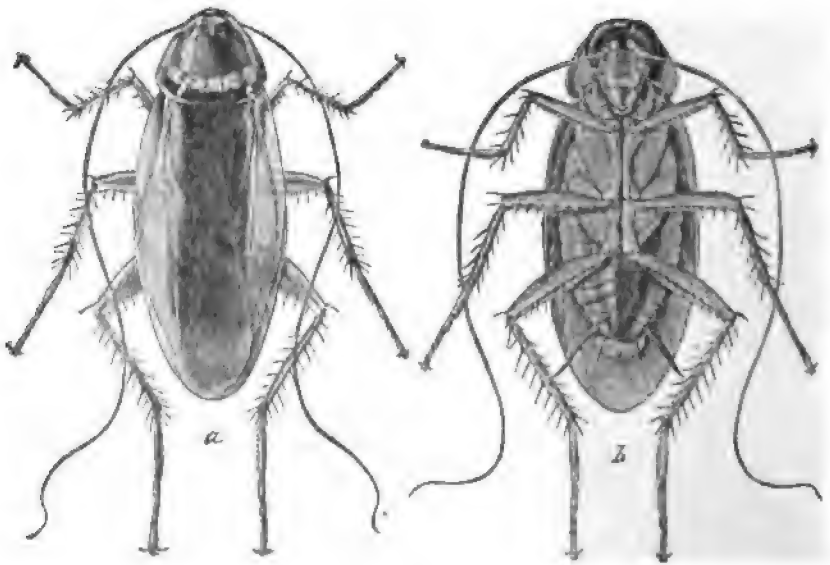


Fig. 5. *Periplaneta americana* Linn. a, view from above; b, from beneath. After Marlatt. Courtesy of the U. S. Bureau of Entomology.

Termes flavipes feeds upon wood which is at least somewhat moist or surrounded by a damp atmosphere, and when introduced into museums or other buildings sometimes undermines the supports of floors to such an extent as to threaten or cause their collapse. Marlatt notes the following concerning the occurrence of this pest in Washington: "The flooring of one of the largest sections of the United States National Museum was for some years annually undermined and weakened by a very large colony of these pests which could not be located, and finally the authorities solved the problem by replacing the wood floor with one of cement." Here then is another advantage of fire-proof construction for museums.

Besides wood, this species destroys books or stored papers if these are kept in rooms which are at all moist and not frequently examined. In such cases its work is apt to pass unnoticed as the termites mine directly through the mass of wood or papers, not breaking through the surface in such a way as to indicate their presence. Records of injury to books are very common, especially in the warmer parts of the country, where most of the damage to woodwork occurs.

The termites live in colonies and each community contains at least three forms, the sexual insects and the workers, which last comprise the great bulk of the colony, except when the winged sexual forms are produced in great quantities at the time of swarming. The issuance of the sexual forms is the most noticeable evidence of the presence of the insects. These are about 6 or 7 mm. in length, shining black, with four large, similar, closely netted-veined, glistening white wings. The entire swarm appears at once, even a small colony producing a large number of adults. The workers and immature males and females are almost pure white, except for yellowish or brownish color on the head. They never venture into the light unless their nest is disturbed or broken into.

If care is taken never to introduce any infested material, they ought to be very easily kept out of museums, at least in our own region. When present, the point of emergence of the swarm of adults will give a clue to the location of the colony.

Order Lepidoptera

The Clothes Moths

Several species of small moths belonging to the same general group of Tineoid Lepidoptera may be included under this head, as at least two of them have been very frequently confused.

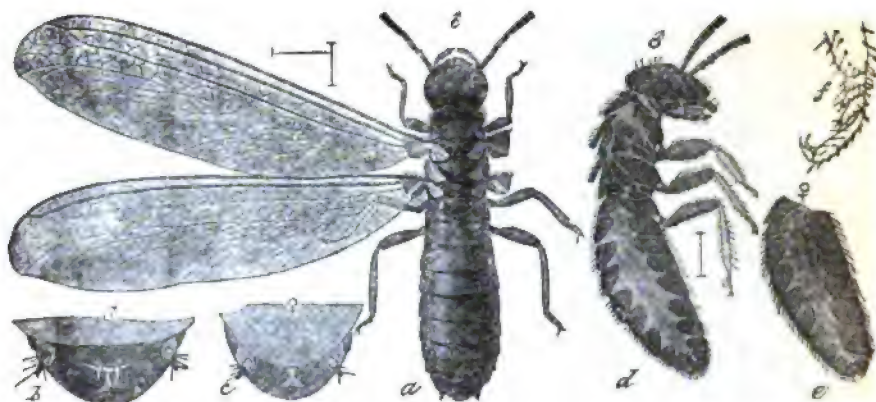


Fig. 7. *Termes flavipes* Koll. a, adult male; b, terminal abdominal segments of same from below; c, same of female; d, male, side view; e, same of female; f, tarsus. After Marlatt. Courtesy of the U. S. Bureau of Entomology.

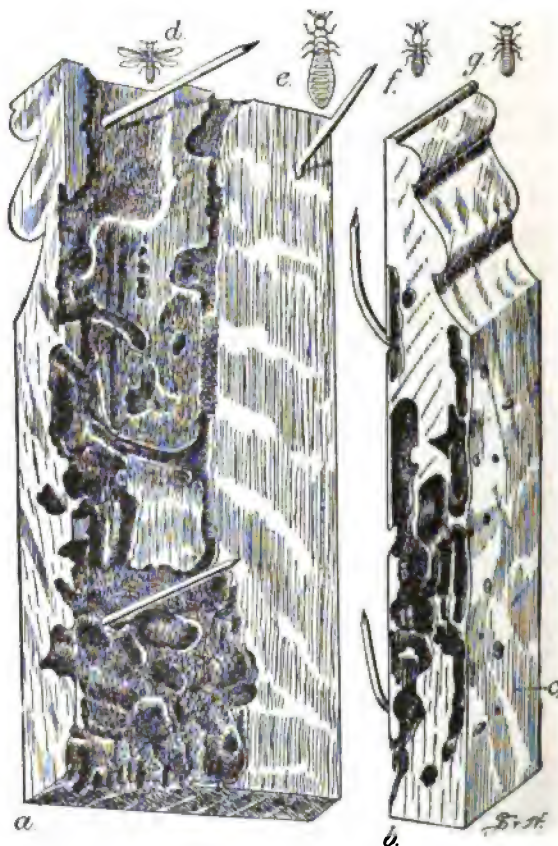


Fig. 8. Work of *Termes flavipes* in sound and dry red oak molding from door casing. a, inner portion; b, longitudinal section; c, outer surface; d, male; e, female; f, soldier; g, worker, natural size. After Hopkins. Courtesy of the U. S. Bureau of Entomology.

The Case-making Clothes Moth (*Tinea pellionella* L.)

The adult moth measures from 10 to 14 mm. across the wings and is about 5 mm. in length. The head and forewings are grayish yellow, with indistinct fuscous spots on the middle of the wings; the hind pair are whitish or grayish and silky, provided with a dense fringe of long pale hairs. The larva is dirty white in color, with the head and upper part of the following segment light brown. It is less than 10 mm. in length, cylindrical in form and never leaves the case which it constructs about its body. This case consists of a matted mass of small particles of the wool or other substance upon which it is feeding, lined interiorly with a coating of soft whitish silk. Whenever the larva wishes to change its location, the anterior part of the body is thrust out of the case which is dragged about by its inmate. Pupation occurs within the case which is

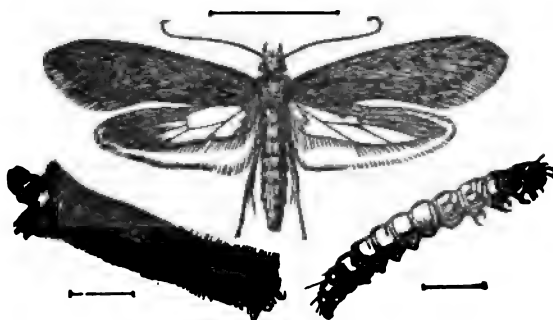


Fig. 9. *Tinea pellionella* Linn. Adult, larva, and larva in case. After Riley. Courtesy of the U. S. Bureau of Entomology.

attached to the substratum by means of a loosely woven series of silken threads. The moths usually appear in the early or middle summer months, depositing their eggs soon after emergence, and dying shortly afterward. In the north the larvæ are very rarely present during the winter, although one can never be positive that damage will not occur during winter months in heated buildings. In the south, however, two or even more broods may occur.

The principal damage caused by the moth in museums is confined to anthropological specimens composed of wool or feathers, tapestries, etc., although it also affects furs of all sorts.

The presence of the larvæ can be most easily recognized by the occurrence of the cases, aside from the presence of patches of matted silken

threads. The flying moths are easily noticed in cases on account of their light color and rapid erratic flight.

The Southern Clothes Moth

(*Tineola biselliella* Hummel)

The habits of this species are very much like those of the previous one, but their distribution is not coextensive, the present form, as its name indicates, being more characteristic of the southern half of the country. From the latitude of Washington southward it is the predominant species, and although occurring also in the northern tier of states, it is there much less abundant than *T. pellionella*.

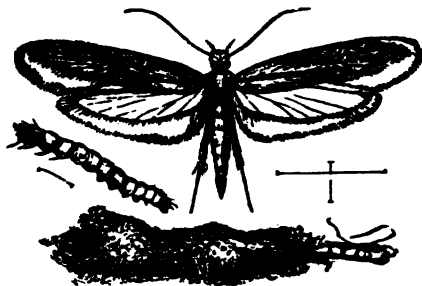


Fig. 10. *Tineola biselliella* Hummel. Moth, larva, and cocoon with empty pupa-skin. After Riley. Courtesy of the U. S. Bureau of Entomology.

The two are of approximately the same size but in *biselliella* the wings are uniformly pale ochreous, without the darker spots or markings present in *pellionella*. The larvæ of both forms are quite similar, but this species does not construct any regular case, simply spinning a fine silky or cobwebby path as it migrates in feeding. Its presence is thus easily made out by the grayish streaks mixed with the granular excrement of the caterpillar. On attaining full growth, the larva prepares a cocoon of bits of its food woven together with silk like that of *pellionella*, except that it is usually more irregular in outline. Animal matter of many sorts is attacked by the larvæ, more particularly woolen, hair, feather, and fur objects. Their occurrence on any sort of plant matter is doubtful. According to Marlatt, this species passes through two annual broods even in the North, the larvæ of the first brood appearing in June from eggs deposited in May and those of the second brood later in the summer, during August and September.

The Tapestry Moth (*Tricophaga tapetzella* Linn.)

This is much larger than the two previously mentioned clothes moths and of rather rare occurrence in museums. The wings expand about 15 mm., the fore pair with their basal third black, the apical two-thirds

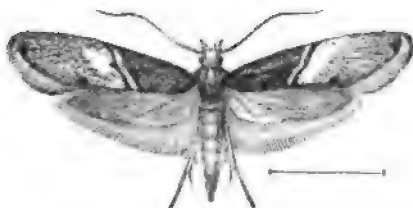


Fig. 11. *Tricophaga tapetzella* Linn. After Riley. Courtesy of the U. S. Bureau of Entomology.

creamy white, more or less obscured near the middle with gray. The hind pair are pale gray.

It usually infests heavier and coarser materials than the two former species, and is occasionally found on skins or furs.

Order Coleoptera

Family Dermestidæ

This family includes a number of the most destructive of all museum pests. These ordinarily injure only matter of animal origin, but several are also known to feed to a considerable extent on dried plants, cereal products, etc. With the exception of the various clothes moths, they form by far the most important group of museum pests.

All are of small size, never over 10 mm. and usually not more than 4 mm. in length. The form of the body is elongate oval, without projections of any sort, and dark or marmorate in color, generally thickly pubescent or scaly, at least below. The larvæ are elongate, fleshy, usually somewhat cylindrical in form and tapering behind, clothed with numerous long, erect, curved hairs. Their presence can be most easily detected by the small spots or piles of their dry, finely granular excrement which accumulate beneath infested specimens. Another evidence of their presence is the occurrence of the dried skins shed by the larvæ at each molt. As every larva molts five or six times, these cast skins are always in evidence where the insects are feeding. While still retaining

the external form and hairy form of the larvæ, they are extremely thin and light and are readily blown about by the slightest air currents. Although the skins are usually about the specimens in plain view, the feeding larvæ are generally well hidden from view, and are not ordinarily seen unless the specimens are carefully examined or shaken with this object in view. On this account one must usually depend upon the cast skins and powdery excrement to detect their presence.

Dermestes

The several species of this genus which appear in the rôle of museum pests are the largest members of the family and usually prefer skins, bones not well cleaned, or other substances containing rather large quantities of dried animal matter. This is to be expected as in nature most of the species breed in dried carrion which has passed through the earlier stages of decomposition and decay.

The Larder Beetle (*Dermestes lardarius* Linn.)

The majority of the Dermestid larvæ occurring on dried bones, animal skins, and other materials with much unremoved animal matter, belong to this species. The larva is a dirty brown, with more or less distinct pale cross bands at the sutures between the segments. Its body is rather elongate, cylindrical, and quite distinctly narrowed toward each end. The surface is well covered with long bristly hairs which are better developed toward the posterior end of the body which bears above two short, curved, horny spines. The adult is elongate oval, with nearly parallel sides, and varies in length from 7 to 8.5 mm.; it is entirely black, except for a brownish-gray, often reddish or yellowish band near the base of the elytra, marked on each side of the median line by a group of three closely placed black dots.

This species occurs both throughout the United States and Eurasia, and is probably native to both continents, although of course now widespread by commerce. It breeds very rapidly and, according to Chittenden, can complete its entire life cycle within the brief space of six weeks, five of which are spent in the larval stage. At this rate it might very easily pass through four or five generations annually in well-heated and otherwise congenial surroundings.

The late Dr. Hagen of the Museum of Comparative Zoölogy writes of successfully trapping the adults in large numbers by means of cheese

used as a bait. They are very fond of this and will be attracted to it in large numbers. While methods of this sort may ameliorate conditions in very badly infested places, they cannot of course be relied upon to exterminate such a persistent pest, once it has established itself, and recourse must be had to more certain methods.

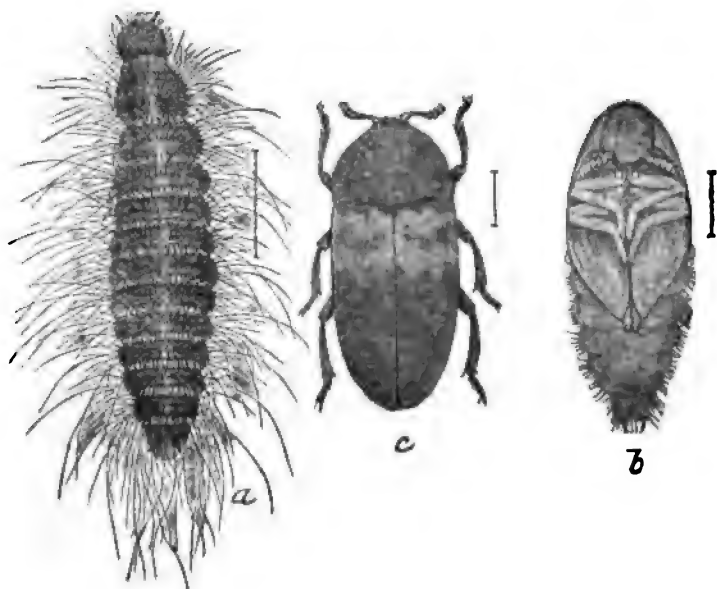


Fig. 12. *Dermestes lardarius* Linn. a, larva; b, pupa; c, adult beetle. After Howard. Courtesy of the U. S. Bureau of Entomology.

Other species of *Dermestes* are known to breed in museums as before mentioned, but much less commonly than the present one. All are very much alike in the larval stages, but the adults of the other species are usually black, marmorate with white or buff above, and principally white below. They are of about the same size or somewhat larger.

The Black Carpet Beetle (*Attagenus piceus* Oliv.)

In some localities this is more abundant than the species of *Anthrenus* mentioned on a later page, and is perhaps more destructive to pinned insects than any other pest. The beetle is very small, varying from $3\frac{1}{4}$ to $4\frac{1}{4}$ mm. in length; narrowly oval in shape, a little more than twice as long as broad. In color it is very dark brown, nearly black, although

some specimens, particularly those newly emerged, often have quite a brownish or reddish cast. The surface of the body is quite distinctly shining and thinly clothed with very short pile. The antennæ are clavate in both sexes, the last club joint considerably elongated in the male. It is quite probably introduced from Eurasia, where it is widely distributed, but has been known in the United States since the early fifties, and occurs throughout the entire eastern part of the country. The larvæ are more elongate than those of *Anthrenus* and are more similar to those of *Dermestes* from which they differ by the longer tuft of hairs at the posterior end of the abdomen. The body is elongate, somewhat cylindrical and gradually narrowed behind, with the surface

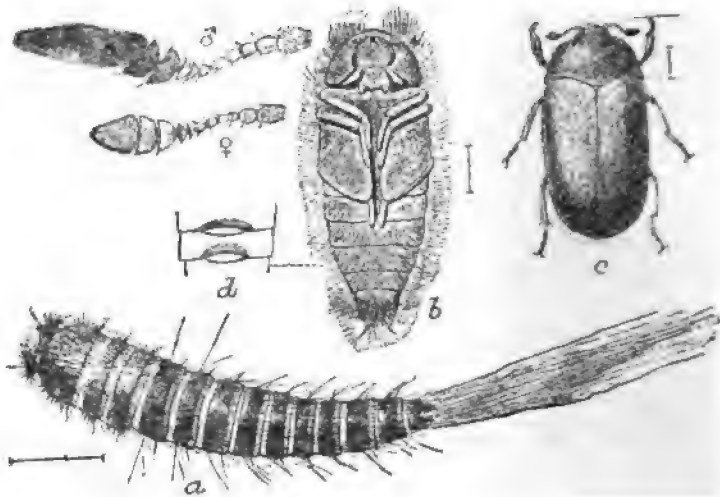


Fig. 13. *Attagenus piceus* Oliv. a, larva; b, pupa; c, adult; d, dorsal abdominal segments of pupa; above at left, male and female antennæ. After Howard. Courtesy of the U. S. Bureau of Entomology.

clothed with short appressed hairs. It is light brown in color, with the sutures between the segments pale. When disturbed it will usually feign death, although its movements are ordinarily quite active. As with other members of the family which infest insect collections, it is probable that the young larvæ quite often gain access to cases of specimens after hatching from eggs laid outside, although the females will of course enter, if possible, to oviposit. This species requires an unusually long time to complete its metamorphosis; according to Chittenden two years are required for the life-cycle, only one or two weeks of which are spent in the pupal stage.

Aside from destroying pinned insects, this species also infests most other dried matter of animal origin, including, wool, feather objects, etc.

The Carpet Beetle (*Anthrenus scrophulariae* Linn.)

The present beetle is a native of Europe which appeared in New York and Boston in 1874. It has since spread throughout the New England, Central and Western states and often appears as a museum pest. Besides attacking skins, it regularly feeds on carpets and woolen goods of all sorts, so may be expected to infest materials of this nature in museums.

The adult beetle is 3-3.5 mm. in length, of oval shape; black above, with the sides of the prothorax and three transverse irregularly angled bands on the elytra, white. The elytra along the suture are clothed with reddish, rarely yellow or white scales; antennæ 11-jointed, with a 3-jointed club. The larva is elongate oval, 6 mm. or less in length,

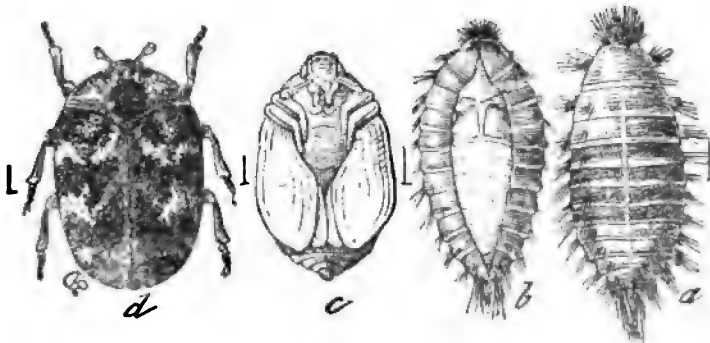


Fig. 14. *Anthrenus scrophulariae* Linn. a, larva, dorsal view; b, pupa within larval skin; c, pupa, ventral view; d, adult. After Riley. Courtesy of the U. S. Bureau of Entomology.

and clothed with stiff brown hairs which are longer along the sides and still longer at the ends.

The adults usually appear in the fall, but may continue to issue during the winter and spring. Soon after emergence the females deposit their eggs which hatch after a period of only a few days. There are about six larval instars, generally of short duration, although these may be prolonged almost indefinitely from lack of food, low temperature, or other untoward conditions. The species appears to pass normally through two generations each year. Although still of somewhat sporadic occurrence, it appears to be growing steadily more abundant and widespread.

The Cabinet Beetle (*Anthrenus verbasci* Linn.)

This species probably causes nearly as much damage to collections of pinned insects in this country as any other single pest. It is common to both North America and Europe, but its destructiveness to museums abroad appears to be much less than with us, the related *A. muscorum* Linn. there assuming the more important rôle.

The beetle is about 2-3 mm. in length, of rather regularly oval form, with black ground color and scaled surface. The elytra bear three irregularly bulging transverse bands, and the prothorax anteriorly to the scutellum has a median white spot. The under side is whitish or yellow-



Fig. 15. *Anthrenus verbasci* Linn. Egg. After Viereck. Courtesy of the U. S. Bureau of Entomology.

ish, while the upper side is furnished with yellowish brown scales, the scales elongate, three or four times as long as broad. Antennæ 11-jointed with a 3-jointed club. The larva is very similar to that of the preceding species.

As naphthalin is the material regularly used to protect museum specimens of insects from pests, the following observation of Mr. H. L. Viereck is of special interest, particularly as it will most likely be found to apply equally well to other Dermestidæ. "Eggs were first noticed about March 1. On March 15, four eggs were put on a piece of cloth, which was pinned into a Schmitt box with no insecticide in it; another lot of four eggs was put on a piece of cloth and pinned into a box containing three naphthalin cones. April 7 the eggs in the box without naphthalin



had hatched and the larvæ were lively. In the box with the naphthalin two eggs had matured embryos or young larvæ; one larva had eaten the end off the egg preparatory to emerging, but there died; the other did not succeed in cutting through the cover, though it was apparently as far advanced in development as the first specimen. The second embryo had apparently inhaled the fumes of the naphthalin through the thin membrane of the micropyle." In other cases it has been found that naphthalin does not kill the emerging larvæ, but only inhibits or retards development while its fumes are present in the insect boxes. This is apparently the case with the smaller amounts of naphthalin generally used.

The Museum Beetle (*Anthrenus musæorum* Linn.)

This is very similar to the two preceding and is an extremely abundant pest in European museums. In our country, it is, so far, of much rarer occurrence. The beetles are about the size of *A. verbasci* (2-4.5 mm.), with the upper surface speckled with yellow. They may be distinguished from both of the foregoing by having only eight joints to the antennæ, which bear a 2-jointed club.

Slosson's Cabinet Beetle (*Thelydrias contractus* Mots.
= *Ignotus ænigmaticus* Slosson)

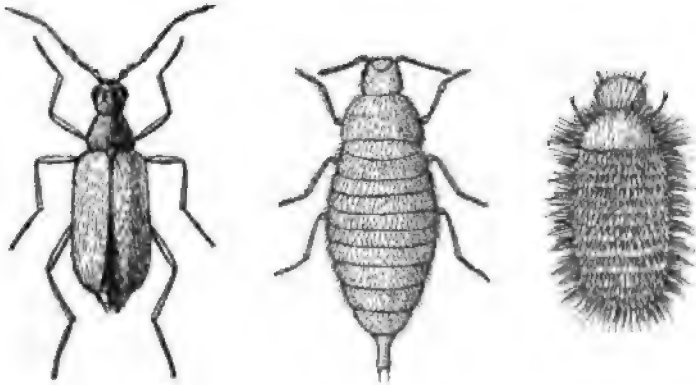


FIG. 16 *Thelydrias contractus* Mots. Male, female and larva.

This most peculiar little Dermestid, probably introduced into America from Transcaucasia, does not appear to have become anywhere abundant, but as it is an undoubted museum pest, deserves brief mention.

The beetles are brownish yellow, very small, 2-3 mm. in length, wingless in both sexes, with elytra in the male, but entirely without them in the female which is larviform. The male is slender, with contracted head and prothorax; while the female is quite stout. Both have a single ocellus on the vertex of the head. The larva is short and stout, thickly hairy, especially on the abdomen, with well-developed head and prothoracic segment.

It will probably be found to infest all sorts of dried animal matter, having already been found in this country on dried insects and echinoderms.

Family Ptinidæ

The Spider Beetles (*Ptinus fur* Linn.; *Ptinus brunneus* Duft.)

These two species are quite similar in form and appearance, the former being distinguished by a series of four white bands on the elytra. The body is somewhat globular, especially in the female, with long and slender legs and antennæ, which give the beetle a spider-like appearance. Except for the markings mentioned, the beetles are reddish brown in color, thickly hairy below and on the legs. The larva is similar to that of *Lasioderma* described on a later page, except that the body is not so thickly hairy.

The beetles affect materials of both animal and vegetable origin, including skins, woolen cloth, roots, herbarium specimens, etc., but rarely become abundant except in the damp atmosphere of basements and cellars.

The Drug-store Beetle (*Sitodrepa panicea* Linn.)

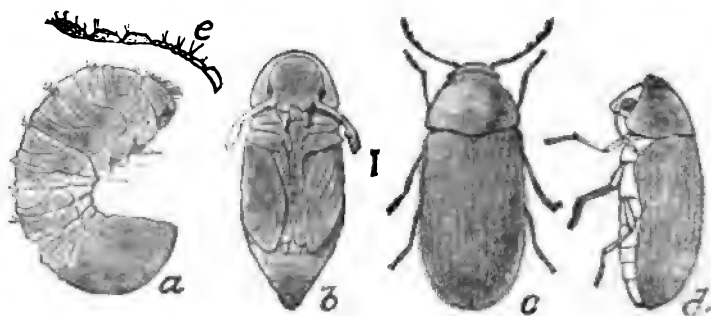


Fig. 17. *Sitodrepa panicea* Linn. a, larva; b, pupa; c, beetle, dorsal view; d, lateral view; e, antenna. After Chittenden. Courtesy of the U. S. Bureau, of Entomology.

This little beetle is injurious almost exclusively to dried vegetable materials, but will attack practically anything of this nature to which it gains access. Its injury in museums is restricted therefore to various sorts of botanical specimens, more especially seeds, roots, commercial products, etc., and even to wood carvings. Cases of injury to leather articles and skeletal ligaments are also on record.

The adult beetle is from 2 to 3 mm. in length, of oval cylindrical form, with the head deeply imbedded in the thorax. It is light reddish brown in color, clothed with a very fine whitish pubescence. The elytra are furnished with rows of punctures between which the surface is finely roughened. The antennæ end in a long three-jointed club. The larva is white, with dark mouth parts, and rests in the characteristic curved position shown in the figure. The injury is caused by the tunnels of the larvæ which extend in all directions through the specimens affected. Their presence is most easily recognized by the accumulations of dry powdery excrement which appear near the burrows. The species multiplies very rapidly as only two months are required for it to complete its life-cycle in a well-heated building.



Fig. 19. *Sitodrepa panicea* Linn. Head and leg of larva. After Chittenden. Courtesy of the U. S. Bureau of Entomology.

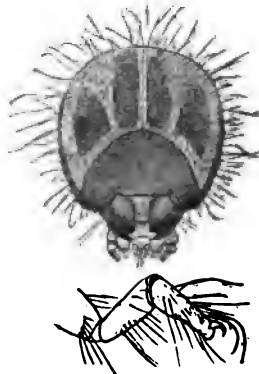


Fig. 20. *Lasioderma serricorne* Fabr. Head and leg of larva. After Chittenden. Courtesy of U. S. Bureau of Entomology.

The Cigarette Beetle (*Lasioderma serricorne* Fabr.)

The range of injury of this species is nearly coextensive with that of the last, although according to Chittenden it appears to be more abundant in herbaria. Its common name has been derived from the large amount of damage which it does to stored tobacco products.

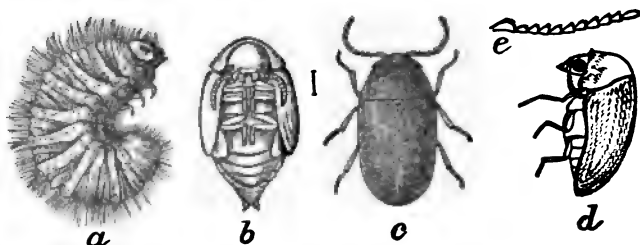


Fig. 18. *Lasioderma serricornes* Fabr. a, larva; b, pupa; c, beetle; d, same, lateral view; e, antenna. After Chittenden. Courtesy of the U. S. Bureau of Entomology.

In size and general form it resembles *Sitodrepa panicea*, but is broader; the antennæ are not clavate, and the elytra are not striated. The larvæ are much more thickly hairy.

Mr. Roy W. Miner, assistant curator of invertebrate zoölogy at the American Museum of Natural History, gave an informal talk illustrated with lantern slides on "Invertebrate Models and Exhibition Groups." The views thrown on the screen were photographs from models and groups of typical invertebrates and were prepared in the American Museum by Dr. B. E. Dahlgren and others. By comparing these views with those of specimens preserved in fluid, the various advantages of the model in an exhibit of invertebrates were shown. Attention was called to a new glass model of a Radiolarian, *Auloceros elegans* Häckel, placed temporarily on exhibition at the Philadelphia Museums during the time of the convention.

Miss Anna B. Gallup of the Children's Museum, Brooklyn, gave a short illustrated account of "The Children's Museum, its Methods of Work and its Results."

Mr. Adolphe B. Covert, of the University of Cincinnati Museum, Cincinnati, read an illustrated paper on "Use of Unkerheimer's Solution for the Preservation of Natural Foliage."

The final paper of the evening was given by Dr. C. H. Eigenmann, of the University of Indiana, on "The British Guiana Expedition of Indiana University and the Carnegie Museum." This paper was illustrated with lantern slides.

On the motion of Dr. W. P. Wilson, a vote of thanks to the officers of the Drexel Institute, for their hospitality, was unanimously adopted.

The Association then adjourned to meet at the Philadelphia Museums the following morning.

SESSION OF WEDNESDAY, MAY 12

Morning

The convention reassembled at the Philadelphia Museums, Mr. Wm. M. R. French in the chair.

Mr. French.—"I do not think I am to preside at this session. We had intended to hold a little meeting of the art section, if I may so call it, but we are fairly submerged. I can count only three representatives of art institutions in the assembly at this moment. My idea in advocating a separate meeting of the representatives of art museums was to transact certain business and so interest that small section of this association as to make sure of their support. I suppose we number not more than one-twentieth, perhaps, of the Association, and we have been recognized far more than our deserts so far."

President Holland here resumed the chair.

President Holland.—"I am in favor of granting the largest liberty to our art friends. If they wish to form a section of our organization they should have an opportunity for doing so. There may be technical subjects they wish to discuss among themselves, why not?"

"In this connection I have had the matter of the medical museums brought to my attention. Mr. Rathmann represented this Association at the Medical Museum Association in Washington and made a plea for union with us. They said, however, that their work was of such a special and specific character, that, for the time being at least, nothing more than cordial relations could be sought; that integral association with us, as a section of our society, would be better taken up at some future time.

"In union is strength, and America is cursed to-day with quite too many societies. We are carrying the thing in the direction of disintegration and Mr. French is right. He has stood nobly for the broader view, and I feel that we are indebted to the art museums for the way in which they have aided in the larger and broader movement. Give them the right of holding sectional meetings. Let them get together and discuss what they will, just as we ask for the same privilege. Mr. French says he stands for union because he believes it stands for strength. This is a movement that ought to take in every museum throughout the land, whether of art, science or history."

Dr. H. C. Bumpus, director of the American Museum of Natural History, here demonstrated an improved metal-frame exhibition case.

Mr. C. H. Townsend, director of the New York Aquarium, then gave a talk and demonstration of transparent labels for use in aquaria.

The following paper was then read by Mr. Frank Collins Baker, curator of the Chicago Academy of Sciences:

SUGGESTIONS FOR AN EDUCATIONAL EXHIBIT OF MOLLUSKS

A visit to any of our large museums will at once reveal the fact to the average man that the usual exhibition of mollusks is given but little attention by the majority of museum visitors. The endless array of similar looking shells with their formidable Latin and Greek names wears the sight-seers and, with few exceptions, the molluscan exhibit is passed by with but a glance. Of late years there has been a tendency to get away from this purely taxonomic exhibit and to mix in matters of a more popular character. Common names appear here and there and an occasional figure or descriptive label is added to illustrate either animal or habitat. It is evident, however, that a complete rearrangement must be made in exhibits of this character if the general public is to be interested to any extent.

Before an exhibit is planned, it is always wise to consider the class of people for which it is being prepared. In Chicago, for example, we know full well that of the many thousands of visitors which crowd the halls of the museums, only the very smallest fraction have the least interest in shells from a purely scientific point of view. The schools, graded and high, are also not interested in the purely taxonomic exhibit, but look for something which will illustrate general principles. The lay visitor is interested in knowing something of the uses to which shells are put, and also where and how they live. People who travel (and this class forms a goodly percentage of the visitors to the museums) wish to know the names of the shells which they have gathered in California, in Florida, or in some other part of the world. Now, knowing, as most museum men do, that it is this class of people that make up by far the largest percentage of the attendance at our museums, why do we continue to present them with the same old exhibits of endless series of genera and species. Truly there is need for us to halt and carefully study the situation.

With this condition in mind, the writer would suggest the following scheme of an educational exhibit of the Mollusca:

TAXONOMY

A synoptic collection should be exhibited, illustrating the broad principles of classification. All of the more important families should be represented by a few typical species, including a fair representation of the extinct groups. Each family should be headed by a large descriptive label, giving in simple language the principal characteristics of the group, its distribution and the number of species contained therein, recent and fossil. Notes might also be made concerning its bathymetrical or hypso-metrical range, its peculiar habitat relations, etc.

GEOGRAPHICAL DISTRIBUTION

Under this head might be included an exhibit of those genera or families which have a restricted distribution or are peculiar to certain places, as, *Campelema* to the eastern United States; *Cerion* to the West Indies and Florida; *Polygyra* and *Ashmunella* to portions of North America. *Achatinella*, some of the Jamaican *Helices*, the Philippine *Helicostylas* and other similar groups would make very useful and instructive exhibits of this character. Maps and photographs should also be freely used.

FAUNAL EXHIBIT

A collection illustrating the prominent species inhabiting a given area is of great value in interesting the public, as travelers are constantly asking for information concerning the shells which they have found in California, Florida, or in other parts of the world. An exhibit of this kind might include such topics as:

| | |
|--------------------------------------|--|
| Marine shells of the Pacific Coast. | Land shells of California. |
| Marine shells of Alaska. | Land shells of Cuba. |
| Marine shells of Florida. | Fresh-water mussels of the Mississippi Valley. |
| Marine shells of the Atlantic Coast. | |

An exhibit of local Mollusca should be included in this series.

ECOLOGY OR HABITAT RELATIONS

This subject is now claiming the attention of many biologists and should receive adequate recognition in museum exhibits. The Mollusca are especially adapted for this character of exhibition, occupying, as they do, a large variety of habitats. Models, as well as photographs, should be freely used to illustrate the mode of life of snails and other mollusks. Such subjects as the following would prove interesting:

| | |
|--|----------------------------------|
| Snails of a muddy beach. | Mollusks of the rivers. |
| Snails of a sandy beach. | Mollusks of the ponds and lakes. |
| Snails of a rocky beach. | Mollusks of the woods. |
| Mollusks of the swamp. | Mollusks of the deserts. |
| Molluscan adaptations to environments. | |

STRUCTURAL CHARACTERISTICS

An exhibit illustrating structural relations is of great value and should include:

| | |
|--|--|
| Gross anatomy. | Herbivorous snails. |
| Variation in shell forms, as sculpture, hinge, form of shell, of lip, of spine, etc. | Land, fresh-water and marine shells. |
| Forms and uses of muscles. | Shells of Arctic, temperate and tropical climes. |
| Color patterns. | The radula. |
| Secondary coatings. | Shelled and shell-less snails. |
| Form of egg capsules and young. | The operculum; its use and variation. |
| Development or metamorphosis. | Dextral and sinistral shells. |
| Internal structure of shell. | Pathologic shells. |
| Carnivorous snails. | |

PROTECTIVE ADAPTATION AND MIMICRY

This subject is one which contains great possibilities and one which has received but little attention. Many of the Mollusca exhibit protective adaptation of a high order, as, for example, the Xenophora, the Crepidulas, some West Indian Cyliodrellas, and a number of others. Many interesting results may be obtained from a study of this subject.

ECONOMIC MOLLUSKS

To the proverbial "hard-headed" business man, this subject appeals and will win his approval when the scientific collection is treated with disdain if it is not actually condemned. The general public, also, is interested in this topic and much of great value may be taught by an extensive and well-arranged exhibit. Under this head such subjects could be treated as:

| | |
|---|---|
| The pearl-button industry. | Mollusks used in manufacture of ornaments, etc. |
| Mollusks used as food. | Pearls. |
| Shell money. | |
| Injurious mollusks (as <i>Teredo</i>). | |

The above seven topics briefly outline some of the principal features of a possible educational collection of Mollusks. It is the writer's conviction that the purely taxonomic collection should be absolutely divorced from the exhibit collection, for each interests a totally different class of people. The serious student wishes to quietly compare or study large series of specimens, while the lay visitor and the amateur students are interested in general principles or in the usefulness of this class of animals. The study collection should, therefore, be kept in a different part of the building, if possible, where the general public cannot gain access to it but where it may be consulted by the serious student under proper restrictions. Descriptive labels in large, clear type should be plentifully, though judiciously used, wherever possible.

No such plan of exhibit as that outlined above is known to the writer to be on exhibition in any museum, but he believes that at no distant day some plan similar to the one outlined will be put in concrete form by some museum man with the time and means at his disposal. An attempt is now being made to arrange the collection in the Chicago Academy of Sciences along some of the lines indicated.

President Holland.—"There is opportunity for brief discussion of the paper."

Professor E. S. Morse (Peabody Museum, Salem).—"The exhibition of our mollusca has been a continual embarrassment. I wonder if there are many people more interested in the habits of the creatures than in identifying the specimens they have in their own collection. It seems to me there are more inquiries by those who wish to know what their species is.

"In Salem we have only square tablets on which we exhibit a few specimens of each family, and others on which we exhibit a few specimens belonging to the different families. I should very much like to see Dr. Baker's idea carried out. I am planning to have a shell come directly under the glass. There is no end of improvement that can be made in exhibition of our shells. I think it is very important that, in a local collection at least, every species should be exhibited."

Mr. Frederic A. Lucas (Brooklyn Institute Museums).—"If Mr. Baker were not a practical museum man, I would ask him if he realizes how much space his plans would take. We have every family of shells represented in the Brooklyn Museums. The local shells are by themselves and an exhibit such as Mr. Baker mentions would be interesting, but it would take an enormous amount of room."

Secretary Rea.—"I would like to say in reference to Mr. Baker's experiment, that it will take a comparatively small amount of room if he installs it. I have never seen so much displayed in a small space as in his museum in Chicago."

Mr. Baker.—"It would not occupy more than half of my gallery, and you know the size of that. It would reduce the taxonomic collection to a minimum. I hope to install a collection similar to the one I have outlined."

Dr. Hermon C. Bumpus (American Museum of Natural History).—"It seems to me we are passing over one remark that was made by Mr. Baker without giving it all the attention it requires; namely, the *purpose* of the exhibit of mollusca. Those who come to the museum for the purpose of identification merely are interested in the taxonomic exhibit. While it is commendable that such people should be incited to an increased interest, we should not forget that it may be equally commendable if interest be excited by other methods. I have in mind the collection which illustrates the pearl button industry in the Mississippi Valley. If interest results from this method of approach, it is just as good as the approach of taxonomy. Interest in mollusca as such, you must succeed in arousing, it matters not what the method is. One thing does matter, however, and that is what method is more successful than another."

Mr. Baker.—"I would say that ninety-nine out of a hundred respond to an appeal which is made from the industrial side."

Mr. Charles R. Toothaker, curator in the Philadelphia Museums, then read the following paper:

EDUCATIONAL WORK OF THE PHILADELPHIA MUSEUMS¹

The majority of the members of this society are, I believe, familiar with the educational work of The Philadelphia Museums as it was carried on up to the time of the last annual meeting. I shall therefore not describe the general plan of the work in detail but give only such points as are necessary to an understanding of two new features which have lately been added.

¹ Mr. Toothaker showed a cabinet 3 feet 6 inches high x 17 inches x 11 inches, containing nine glass-covered drawers and a closet, as a sample of one of the new collections for elementary schools, and several sets of colored lantern slides, with typewritten lectures. Examples of the lanterns and screens which are loaned were also shown.

Briefly stated, the educational work of this institution consists of—

1. Free distribution to public schools in Pennsylvania of systematic collections to aid in the teaching of geography, commerce, industries, and natural history. These collections contain the important materials which form the bulk of the world's commerce and include a selected series of photographs to illustrate the various subjects. Carefully prepared descriptions are printed on the backs of the photographs, and a book on commercial raw materials, with many maps and diagrams, accompanies each collection.
2. Daily illustrated lectures in the Museum to classes from public and private schools of Philadelphia. These lectures take up the countries and products which are studied in the regular work of the school, and are supplemented by a study of exhibits in the Museum.
3. Lectures to the general public, to teachers, and to various societies on geographical, industrial, and economic subjects.
4. Special information to merchants and manufacturers—the work of the Bureau of Commercial Information.

The collections which have previously been given to Pennsylvania schools have consisted of some specimens in bottles and others in loose form, such as hanks of fiber, or samples of minerals. The schools receiving the collections have been required to furnish show cases large enough to properly accommodate the material and preserve it. Many of the smaller country schools are poor and it has seemed practically impossible for them to get money to pay for the show cases. Some of these schools, it seemed to us, were perhaps in greater need of these aids to teaching than the city schools.

After consultation with many teachers, we devised and are now distributing to elementary schools this new collection, in which a selected series of specimens is contained in a small cabinet of drawers. Each drawer contains the specimens which illustrate one subject: for example, one drawer shows the principal products of the corn plant; i.e., a section of an ear of corn, samples of different kinds of grains of corn, popped corn, corn flakes, hominy, corn meal, corn starch, dextrine, corn oil, corn rubber, glucose, corn syrup, corn whiskey, and corn pith.

Another drawer shows a small silkworm, a mature worm ready to spin a cocoon, mulberry leaves, cocoons, pierced cocoon from which a moth was hatched, the moth itself, a chrysalis, the eggs, raw silk, spun silk,

artificial silk made from wood pulp, tussah silk thread and pongee, and samples of silk, satin, velvet, and bolting cloth.

Other drawers illustrate rice, tea, coffee, chocolate, the cocoanut palm, the flax plant, the cotton plant, products of the sheep, and the important forms of carbon and of hydrocarbon products.

Specimens which are in powder or granular form are placed in light pasteboard boxes with glass covers, and liquids are held in small flat bottles. All the specimens are securely fastened to the bottom of the glass covered wooden drawer so that there is absolutely no danger of anything becoming disarranged or upset. Labels are pasted directly on the bottom of the drawer beneath each specimen. Before the specimens are installed in the drawer, everything is thoroughly fumigated and many of the specimens are treated in such a way as to prevent fermentation or mold from causing harm. In a small closet at the base of the cabinet is a series of a few important economic minerals and of the chief woods of commerce. The photographs and the book on commercial raw materials which accompany this small collection are also in this closet.

There is a very large demand for this new collection, and it has been commented on in the most favorable way, by some of the foremost educators of Pennsylvania, and by those of other states who have seen it.

The second new piece of work is what we call our "Loan Lectures." The daily lectures to the schools of Philadelphia have been so successful that we are now attempting to give, as nearly as possible, the same facilities to schools in distant parts of the state. We have therefore prepared a considerable number of sets of colored slides illustrating the following subjects: Philippines, Japan, China, Hawaii, South Sea Islands, West Indies, Mexico, Niagara Falls, Lumbering, and Panama.

Each set consists of from sixty to seventy slides and is accompanied by a type-written lecture in which each slide is described in detail. The lecture can be read from the type-written sheets in an hour or a little more. The slides are all of them beautifully colored and the lecture is a great deal more than a travel talk. It is a careful study of the people and the industries of each country which is taken up.

These lectures are loaned absolutely free of cost to schools in Pennsylvania. While the plan has been in operation only a few months it is no longer an experiment but a pronounced success, and the demand is so large that many duplicate sets are being prepared and new subjects are to be added. One or two slides in each set show exhibits in the Museum which illustrate the subject of the lecture and do a little to make the Museum better known throughout the state.

If the school desiring to borrow a loan lecture does not possess a stereopticon we loan with the slides a lantern and screen. The lanterns are of the very simplest pattern, and are accompanied by such plain directions for operating that they are handled successfully by country teachers who are absolutely unfamiliar with such apparatus and who never handled anything of the kind before. The lanterns are fitted with either electric arc lamps or incandescent electric bulbs when they go to schools where the electric current is available. In other places the illumination is supplied by a kerosene lamp, which gives excellent results and is thoroughly simple, safe, and reliable.

The loan lectures are often used by the teachers to furnish at the same time instruction to their scholars, and an evening's entertainment to the parents and friends. This new plan is thus aiding to make the country school house a social center.

Mr. C. G. Rathmann (Educational Museum, St. Louis, Mo.).—"I would like to ask if Mr. Toothaker has had an opportunity to ascertain to what extent the material is used."

Mr. Toothaker.—"These cabinets have been only recently sent out."

Mr. Rathmann.—"Having charge of the School Museum I have followed the work of the Philadelphia Museums with interest. We needed material very much and the Philadelphia Museums were kind enough to send it to us free of charge, and I want to thank Dr. Wilson and Mr. Toothaker publicly for their kindness."

Dr. A. R. Crook (Illinois State Museum of Natural History, Springfield, Ill.).—"How many have you prepared, and what has been the cost?"

Mr. Toothaker.—"Three hundred of the small collections. I cannot quote prices from memory. They have probably cost us in the neighborhood of forty dollars a piece, but that is merely an estimate."

Treasurer Wilson.—"There is a great deal of hand work here. We have not all the data in reference to what it has cost. I think we can do it for much less than forty dollars each. There are minerals and other things that you have not seen, common woods, and various things that it is impossible to take time to speak about. Probably the cost could be gotten down to thirty dollars. Next time we shall probably make eight hundred to a thousand at one time. Ordering by the hundred the cost of the case with the glass and everything complete is nine dollars, made by a good firm and put together with screws and warranted to stand the wear and tear of small children. We give them outright. We have

nothing to do with them after they go out, except to keep them in order. They go all over the state in the ungraded country schools, and there are eighteen thousand in Pennsylvania. We have set out to make eighteen thousand cabinets if possible. We get an appropriation for the school work of twenty-five thousand dollars every two years, and we never tried to get any more, because it was about all we could use economically and carefully for our school work."

President Holland.—"The State of Pennsylvania gives eleven millions each year for the support of her schools. She is very liberal.

"We will now proceed to the next paper, which is by Mr. W. H. Schoff of the Philadelphia Museums."

THE HISTORY OF COMMERCE IN MUSEUMS

Commerce between different communities of men is at the beginning of all civilization, and is the compelling cause of all achievement in the arts and sciences. Communities, which themselves contain the essentials of life or which, by their location, have been excluded from free communication with their equals, have not produced a degree of civilization such as to impress the world or to have an enduring record in history. It is the lack of essentials, or the ability and enterprise to acquire them elsewhere more advantageously than they can be produced at home, that stimulates any community to extra effort and enthusiasm; first, toward increasing the value of its stock available for barter and, second, toward increasing its education and improvement and the fitting enjoyment of its artistic and scientific achievement. Therefore a history of the commerce between nations is, more than any chronology of wars and dynasties, a history of the progress of the peoples interested; of their success and failure, their national glory and decline. And a graphic record of that history, so presented as to leave a consistent and consecutive impression on the mind of a spectator, cannot fail to be a helpful introduction to a more specialized interest in almost any direction.

The materials for such history are multiplying with wonderful rapidity, as the annals of recent centuries are collated and printed, and as the vastly more difficult period of ancient history is opened to view, millenium by millenium, by archæological discovery and research. It is not so many decades since the limit of our knowledge was the caravan of merchants bearing spices, balm and myrrh into the land of Egypt, by whom Joseph was carried off and sold into slavery; nor since a school of criticism under French inspiration was trying to prove that at such an

early period in human development, before the invention of writing and the establishment of industries it was impossible that even such a measure of regular trade should have existed. It is now certain that those merchants were the intermediaries between the great centers of trade which had already existed perhaps more years than have since elapsed to our own day and which were even then in their decadence, and steadily overrun and subdued by those very commercial intermediaries, the nations of Arabia.

As we examine the evidence before us it appears that even earlier than the commerce in which Arabians were the merchants, was that commerce which came to the Persian Gulf from India in ages still but vaguely indicated, before Aryan or Semite had appeared on that scene of activity, the extent of which is at least suggested by the impress which it has left on the records and traditions of both.

But without indulging in speculation as to origin of the so-called Babylonian Creation Epic, which seems at least to be an Odyssey of this pre-Semitic commerce, we have the Egyptian records of the Palermo Stone, telling us of a census taken about 3300 B.C., of shipbuilding on a large scale in the 30th century, and of the building of 100-cubit ships a century later; 180 feet is still a fair length for a coasting schooner. By the 28th century there was a steady import trade in copper and electrum, myrrh and ebony and doubtless many other substances; and by the 20th century the lapis-lazuli of Afghanistan, and the precious stones of India, found an increasing demand, and the conquests of Sesostris had led to the establishment of regular markets and custom houses at the borders of the kingdom.

Meantime the culture of the Euphrates had advanced even further. Earlier than the beginning of the dynasties in Egypt, it had sought the copper of Cyprus and organized a series of trade routes that led from the Indian Ocean to the Mediterranean. Fourteen centuries later we have the well-settled commercial practice of the country codified by Hammurabi, providing, among other things, for the use of bills of sale under seal, for responsibility in case of loss in injury to goods in transit, and for the assessment of damages against the owners of a merchant vessel under way which might run down another at anchor. And all this before that caravan of Joseph!

The materials for subsequent periods need hardly be referred to here; the inscriptions of Egypt down to the Persian conquest; the records of the Hebrew kingdoms, particularly that famous denunciation of Tyre by Ezekiel, through which he has preserved for us a detailed statement of

the commerce of the Phœnicians; the inscriptions of Assyria; the laws of Manu in India; and finally the definite sequence of written history, through the days of Greece and Rome, the Caliphate and the Italian republics, down to our own time.

Too great value can hardly be placed on the results of discovery and research originated here in Philadelphia. Without the treasures unearthed and interpreted by the archæologists of the University of Pennsylvania, and steadily being added to the exhibits in its museum, our knowledge of the commerce of the distant past would be but a fraction of what it can now be.

The selection and presentation of essential facts from this vast mass of material, and their display in graphic form, consecutive order, and limited space, is an object of the exhibit now under preparation in the Philadelphia Museums. Under the plan adopted there will be confined in the exhibit:

1. A series of maps, at typical periods of history, showing national or political divisions and principal trade routes at each period selected, and provided with just enough notes to make the maps intelligible.

2. In the same cases with the maps, specimens of the products entering into commerce during the period illustrated, so labelled as to show their origin and destination and anything else of importance.

3. Adjoining the maps a series of models of commercial shipping at all periods of history, based on contemporary description, and made to uniform scale so that the spectator may see at a glance the relative size and capacity of merchant ships at different periods. The comparison of the ships of ancient Egypt with the maximum of Roman enterprise, and then with a modern steamer or sailing vessel, is thus made easy and impressive.

4. Surrounding the exhibit, a series of pictures will show the development of transportation from the bearer of burdens, the hewer of wood and drawer of water, through the various stages of vehicle construction down to the modern railway train, automobile and airship.

The material now in the cases, comprising a preliminary display at an exposition, is subject to considerable alteration, especially as to the method to be employed in coloring and annotating the maps. It is no easy matter to choose between the facts that ought to appear in print, and those which by their very simplicity are likely to be read. Neither is it easy to choose between a map in which boundaries and routes tell their own story, and one in which solid color and lettering both distract and assist the eye.

The models of shipping, when the series is completed, will form an exhibit of especial interest. We ought all to be familiar with the splendid collections in the National Museum at Washington and the Peabody Museum at Salem. There are fine collections abroad at South Kensington and in the Louvre. But this series in Philadelphia, as far as known, is the only one in which the attempt is made to follow the course of sea-borne commerce from its earliest beginnings in the dug-out canoe or raft to the modern trans-atlantic leviathans. The only series of similar purpose, although in a different medium of expression, is the fine collection of mural paintings by Mr. Millet just installed in the new custom-house at Baltimore; a collection which every one interested in the merchant marine ought to see and understand, and to the author of which I acknowledge deep indebtedness for generous assistance and suggestion, notwithstanding his characteristic assertion that my models "made his painted things look like thirty cents!"

The purpose of this historical exhibit is of course to educate the public or rather to suggest a consecutive idea which may be carried out or not as the spectator wishes. It can therefore hardly aim toward new discovery, but rather toward a selection and popular presentation of material which is too apt in more intensive treatment to be given distorted expression or to be lost altogether to the general public. Its completion should not only contribute toward the educational work of the institution, but also provide a means of introduction to the specialized collections of the commercial products and natural resources of the different nations of the world, which form so large a part of the exhibits of the Philadelphia Museums.

President Holland.—"The next paper to be presented is by Mr. John J. Macfarlane, librarian of the Philadelphia Museums."

THE ADAPTATION OF A LIBRARY TO A COMMERCIAL AND ECONOMIC MUSEUM

It cannot be expected that in the few minutes allowed me to discuss "The Adaptation of a Library to a Commercial and Economic Museum," that I can explain fully the peculiarities of this Library and its adaptation to the commercial and economical features of the Museums.

At a conference of museums held in Glasgow in 1901, Mr. W. E. Hoyle, when called on for an address, said that he thought he could best serve the purpose of their meeting by giving a brief account of an institution which

seemed to him destined to render important services to the enlightened community which created it, and which impressed him as much as anything on the Continent, not excepting Niagara Falls and the Congressional Library. "I allude," said he, "to the Philadelphia Commercial Museum." While not assuming that the institution will impress you to the same extent, nevertheless I believe if you could take the time he did to investigate the commercial end of our Museums you would, like him, be surprised at the perfect adaptation of its methods to accomplish the end desired. An important part of these methods is accomplished by the Library.

Among the objects set forth by the promoters of the Museum was, "to gather from all parts of the world and to make immediately available to business men full and specific information concerning trade conditions and trade connections." This is the part of the work of the Museums assigned to the Library, and you can see at once how necessary the Library is to the work of the Museums.

In carrying out the purposes of its promoters we have collected here the official reports of the imports and exports of about seventy-five different governments, including practically all that publish such reports. We have not only their annual reports, but also the monthly reports of many of them, so that we are able to furnish the latest information as to the trade of these countries almost as soon as institutions in their own land.

I have placed here on the table illustrations of this class of books. In Europe I have placed those of Greece and Servia, as well as those of England and Germany. An interesting fact in regard to the Balkan States is that their publications, while in their own language, have parallel columns in French. In Africa we have Egypt and South Africa, those of Egypt being published in French. In Asia we have Japan and China, those of Japan being both in Japanese and English. The Chinese publications are in English. We can readily see from this that English is the commercial language of Asia. In South America we have Uruguay, Peru, Argentina and Brazil. The publications of all the countries in South America, excepting the Guianas and Brazil, are in Spanish; those of Brazil are in Portuguese. In Oceania we have Australia and the Dutch East Indies, the latter being in Dutch. In North America we have Mexico and Canada.

These are only a few and are selected in this way to show how universal our collection is. In addition to this class of works we have the official gazettes of the various nations which contain valuable information on

subjects other than commercial statistics. The reports of 400 Chambers of Commerce and Boards of Trade may also be found here on our shelves and, what will interest you most, the reports of 94 museums, most of them foreign. We also have one of the best collections of books on the history of commerce to be found in the country. This part of the Library is unique in its character. No library in the country, not even the Library of Congress, has a more complete collection of statistical publications on commerce issued by foreign countries. But this is only one side of our work. In order to make these works serve their full purpose, viz: to furnish information to business men, it is necessary to supplement them by books of travel in the various countries of the world, descriptive of their natural features, climate, geology, plant and animal life, people, manners and customs, industries and productions.

For the use of the Scientific Department we maintain a library of scientific books covering botany, zoölogy and geology, treating on commercial materials, such as foods, fibers, resins, and oils; also books describing the processes of manufacturing raw materials.

We have also on our files 650 trade and other papers, of which 370 are from foreign countries. Another class of books, of which no other library probably has as large a collection, is the directories. We have here the directories of every city of the United States having a population of 100,000; and of all the large important cities of the world, as well as trade directories of the leading centers. There are also books on international commercial law of many countries and a number of code books which are found exceedingly useful to our business men.

From time to time the Library prepares commercial charts, such as you see hung here, and commercial articles on the leading products, which are published in the monthly publication, known as *Commercial America*. The translation work of the Bureau is done in the Library. Last year 17,593 letters, containing 2,931,000 words, were translated by this department.

From this condensed statement of the contents of the Library you can readily see how important a factor it is in the commercial and economical work of the Museum, and when we think how frequently great results in industries have followed from the use of books by comparatively uneducated men being able to discover economies in the manufacture of various products with which they are associated, the immense importance of a library of this kind to a commercial museum cannot be overestimated.

A lesson on Commerce can be taken from the Charts on the wall. In the two charts on the Commerce of the World, the exports from

and the imports into the four countries, Great Britain, United States, Germany and France, represent nearly 50 per cent of the world's trade; to be more exact, 47 per cent. The United States is second in exports, but for a number of years has alternated with Great Britain in holding first place.

In the charts on the United States we see that Great Britain and Germany not only sell more to the United States, but also buy more from the United States, than any other country. We also see that a country, like Brazil, from which the United States buys enormous quantities does not reciprocate in her purchases. In the charts of the United States on products, we find that cotton represents almost one-fourth of all our exports, while in imports sugar leads all other products. If the sugar coming from Porto Rico and Hawaii were included, the figure would be much larger.

The chart of Great Britain shows that that country buys more from the United States than any other country, its imports therefrom consisting largely of food products and cotton. The same fact is probably true of Germany, although the detailed statistics for 1908 are not yet available. In 1907 Germany bought more from the United States than from any other country, mainly cotton, copper, and food products. These facts show why neither Germany nor Great Britain can afford to go to war with the United States, for to do so would cut off the supply of cotton and food products, thereby closing enormous industries employing large numbers of people for want of that which cannot be obtained from any other place.

In Mexico one-half of all the imports are from the United States. In Canada more than one-half come from the United States notwithstanding the preferential tariff in favor of the mother country, Great Britain. In Japan the United States ranks second in imports, although it buys more from Japan than any other country. The most striking case, however, is that of Cuba, in which one-half of the imports are from the United States and more than three-fourths of the exports are sold to the United States.

The chart of the leading textile cities of the United States will bring out a fact which probably is unknown to most of you, viz: that Philadelphia produces more textiles, included in which term are cotton, woolen, worsted and silk goods, carpets, hosiery and knit goods, than the next three textile cities of the United States. It is not only the largest manufacturing city of the world, but probably the largest textile city of the world.

Treasurer Wilson.—"We started out with a charter, so to speak, from the Councils of the City that we might develop a group of museums.

This was first mentioned in the original act passed by the Councils of the City and was later re-inforced by the charter from the State. The emphasis has been laid upon the commercial side of everything here because it touched the commercial and the manufacturing interests and it was thus possible to obtain the money for our work.

"We have a bureau, which carries on the commercial work, employing thirty people. All the money comes from the manufacturers who use the bureau, the income last year being \$32,000. The library is supported by the city, and is conducted as an open and free library of reference for the people of the state and the country. The bureau answers questions and does all kinds of work for manufacturers throughout the United States, but must depend on its own resources. We ought to have some good people who would endow the bureau so that we could furnish this information free to every Chamber of Commerce and every Board of Trade in the United States. There are two publications, a monthly and a weekly, the latter being a sort of confidential journal to those manufacturers connected with the bureau. The monthly contains accounts and illustrations of the fine inventions, all sorts of mechanical devices, and those peculiar things in which we stand at the head in the United States, bringing them to the attention of the foreigner who wishes to know what we are doing."

President Holland.—"We will now hear the report of the Auditing Committee."

May 12, 1909.

To the Members of the American Association of Museums:

Your Auditing Committee reports that the statement of the Treasurer has been examined and found to be correct, with proper vouchers for all expenditures.

The Committee suggests that in the printed report the purpose for which the several expenditures were made be stated.

GEORGE FRANCIS DOW,
FRANK C. BAKER,
O. C. FARRINGTON.

On motion duly made and seconded the report of the Auditing Committee was adopted.

The Association then adjourned to another building where the following paper was read by Mr. Fred D. Maisch, photographer in the Philadelphia Museums.

PHOTOGRAPHIC ENLARGING METHODS

In fitting up a room for making bromide enlargements, the first consideration is the selection of a suitable light. The electric arc light on account of its high actinic power is generally used. A window facing north, free from reflections from brick walls, is also a suitable light. But both these lights are open to objection. The arc is unsteady in its illumination, on account of the crater constantly travelling around the carbons, and because of its great heat cannot be boxed in. It must, therefore, be mounted in an adjoining room, its light passing through an opening cut in the partition and accurately fitting the condenser cells which one desires to use. The lamp used is of the automatic adjustment type, and is, of course, entirely beyond the control of the operator. Daylight is objectionable because of its subtle changes, which cannot be accurately judged in the dark room.

In our dark room neither of these two sources of light was available and we were forced to resort to the incandescent electric light. This is not in general use because of its comparatively low actinic power and the difficulty of adjusting a reflector so as to assure an even illumination. On the other hand it has great advantages: it is reasonably steady, can be completely boxed in, and with a button on the outside of the light box is completely under control.

Figure 1 shows the arrangement of the light box. The inside dimensions are: 24 x 12 x 12 inches. The distance from the nearest point of the bulb to the front is 18 inches, and the bulb used is one of the new Tungsten lamps for which 250 candle power is claimed, requiring a comparatively small amount of current. The reflecting surface is corrugated mirror glass arranged in such a way as to eliminate all right angles and make every ray of light active and useful.

The length of the box was determined by the angle of reflection from the brightest part of the lamp to the strips of mirror glass in the corners of the box, and out to the front, insuring perfect illumination along the diagonals of the negative. The usual method of determining the length of the light box is based on the focal length of the condenser system, the distance between light and condensers being about equal to the focal length. In the box under consideration this focal length was disregarded. The intention was to secure the greatest possible amount of light at the circumference of the condensers. The results are: even illumination over the entire negative, loss of light for small or moderate enlargements, but a decided gain in diffusion of light for great enlargements. In other



FIGURE 2



FIGURE 1

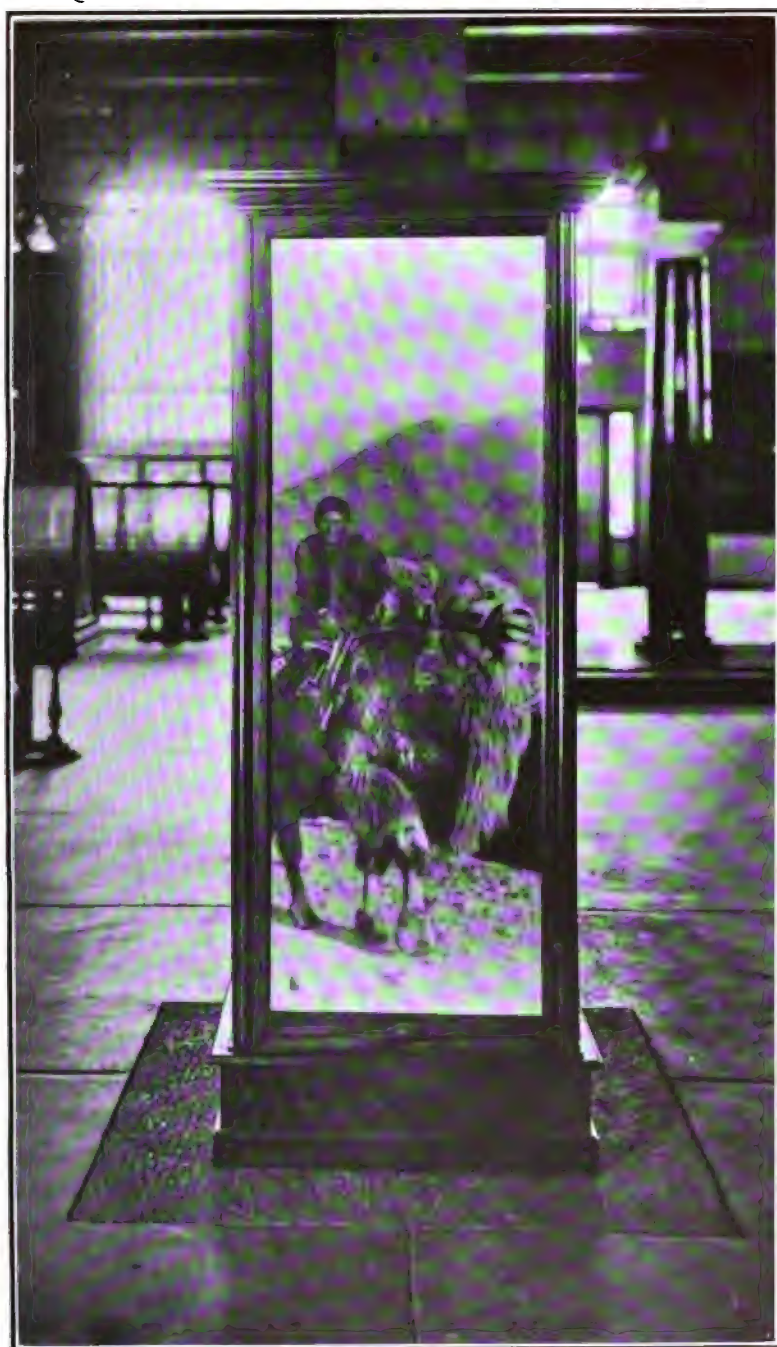


FIGURE 3





FIGURE 5



FIGURE 4



FIGURE 6

words this arrangement prevents in great measure the objectionable contrast so often shown in enlargements of extraordinary size.

Telescoping over this light-box is the box holding the condensers, which are twelve inches in diameter. The condensers are adjustable inside this box by means of blocks and screws moving easily in slots cut into either side of the box. The location of the slots was determined by the weight, height and thickness of the frames holding the condensers, and is the point at which the condenser frames can be moved with the greatest ease. A set of frames or kits holding any size of negative up to 8 x 10, either vertically or horizontally, fits into the front of the condenser box. The condensers are mounted in the usual manner, allowing space between for inserting a ground glass at will. The effect of the use of the ground glass is to diffuse or correct an apparently uneven illumination. The frames holding the condensers should fit snugly into the box.

Sliding in grooves under the boxes just described, and at right angles to the front of the condenser box, is a shelf for supporting the camera (Figure 2). The boards into which these grooves are cut furnish a firm support for the heavy condensers and reduce the strain on the light box to a minimum. The entire apparatus has been in use for two years and its alignment is as perfect to-day as it was when first installed. The lens used in the camera is a Voigtlander Collinear of $7\frac{1}{8}$ inch focus, which at a distance of nine feet from negative to easel will enlarge a figure measuring $3\frac{3}{4}$ inches up to $3\frac{1}{2}$ feet. The lens and condensers readily cover a negative measuring $6\frac{1}{2}$ x $8\frac{1}{2}$ inches. Our easel is 4 feet wide and 6 feet high, and made of $\frac{1}{4}$ -inch stuff heavily and firmly braced.

The possibilities of bromide enlargements for museum use are perhaps best shown by a few illustrations.

The original negative of Figure 3 was made by Mr. Bailey Willis of the United States Geological Survey on his trip through northern China. From this I first made a 5 x 7 negative and enlarged that to a panel measuring 2 x 6 feet. The picture in the corner is a contact print from Mr. Willis' original negative and the actual enlargement is 33.6 diameters, or 1128 times the area. The original negative was made with an ordinary No. 1 Kodak, with no accessories other than those furnished by the makers. This proves that extremely serviceable pictures can be made with the ordinary snapshot camera, if it is used with care and good judgment.

These panel pictures are intended to form a part of an exhibit showing the evolution of commerce which is being arranged by Mr. W. H. Schoff of The Philadelphia Museums. At first we had considerable trouble in

finding typical pictures which could be squeezed into this narrow panel, as will be clearly seen upon examination of the following illustration.

Figure 4 was the picture which we desired to use, but we found it to be entirely too wide to lend itself well to the proportions of the panel. The difficulty was solved by placing the pictures before the camera at an angle of 45° and making a copy with the lens stopped down to the smallest diaphragm, with the result shown in Figure 5. The finished bromide print as finally installed in the Museum (Figure 6) loses every evidence of distortion or foreshortening.

It is the Museums' intention to illustrate in these panels the most typical methods of transportation, beginning the series with the most primitive, the human burdens for personal needs, and ending with the modern limited express and ocean greyhound.

The Association then adjourned for luncheon at the Philadelphia Museums.

SESSION OF WEDNESDAY, MAY 12

Afternoon

President Holland.—"We will now hear from Mr. Henry R. Howland, superintendent of The Buffalo Society of Natural Sciences."

THE EDUCATIONAL WORK OF THE BUFFALO SOCIETY OF NATURAL SCIENCES IN COÖPERATION WITH THE PUBLIC SCHOOLS

The extension of their educational work on the part of American museums is a movement that awakens a widespread interest. The excellent papers which were read at the Chicago meeting of this Association are an evidence of the strong desire felt by our most active museum superintendents, not only that their valuable collections should attract and enlighten their many visitors, but that these collections and the other resources of their museums should be made to serve a purpose of especial educational value in connection with the teachers and pupils of the public schools. This attempt to supply concrete instruction in nature study which may enlarge and better, by the sight of the eye and the hearing of the ear, those things which have in former years come to the child

only by the textbook and the class room teacher seems to be the present endeavor in most of our larger cities. Various methods have been adopted to compass this result, in most of which, we, of the Buffalo Society of Natural Sciences, were early sharers, but our tentative efforts spread over a period of very many years have, in these later years, resulted in an arrangement which is, perhaps, unique, inasmuch as, so far as I can learn, our Society is the first of its kind to carry out the successful experiment of directly correlating its distinctive work with that of the Department of Public Instruction so that the lectures and nature talks given daily in our own lecture rooms are made a compulsory part of the public school system of a great city.

We have received so many inquiries as to this arrangement and as to our methods, which seem to evince a widespread interest here and in Canada as well, that they may, perhaps, be a sufficient apology for briefly stating what we have essayed to do and how we are doing it.

During the half century of its existence the Society has always recognized that, in addition to its natural function of stimulating and encouraging original scientific research, a controlling purpose should be to further educational work in Buffalo by every means in its power. Its museum and its library have always been opened to the people for their free use and year after year popular lecture courses have been given during the winter months upon such scientific subjects as are of general rather than technical interest. These have always been free to the public.

Its first impulse towards extending its influence more directly in an educational way, came thirty-seven years ago when Charles Linden, ardent lover and student of nature, was custodian of our museum. An enthusiast himself, he had the rare gift of inspiring others and he organized a Field Club as a part of the Society's work. This was made up very largely of pupils from the Buffalo High Schools with whom Professor Linden, who was like Thoreau in his love of the woods and fields, would make weekly excursions for scientific observation and study. There was a freshness in his instruction as of nature herself. The interest thus awakened in the community grew apace and when, in 1878, the Department of Public Instruction introduced elementary science work in the Grammar Schools of Buffalo, our Society at once took steps to encourage the science teachers to bring their classes to its rooms and to utilize its collections for illustrative instruction.

This offer of assistance was favorably received and for many years these teachers brought their classes to the Museum, the collections of rocks and minerals, of native birds and animals, proving of great service

to the classes and their instructors. At first no attempt was made to provide other lectures or instruction, but after a time a projection lantern was added to the Society's equipment and first employed to illustrate talks upon nature study given by school principals or class teachers to whom the privilege of the lecture room and the lantern were freely offered. Then traveling collections of scientific exhibits were prepared and loaned to the schools and at the beginning of each school year, having been returned always the worse for wear, they were, like the kiss which the lady returned to Roland, "revised, corrected and considerably enlarged" and started again on their travels.

After several years it was decided to begin a regular series of Saturday afternoon illustrated lectures upon such topics as Birds and Bees and Insects, arranged for such teachers and pupils as cared to come, the lectures to be given by Dr. Cummings, the secretary of the Society.

This plan when put into operation became at once a success. Attendance was voluntary but the familiar talks and illustrations so interested teachers and pupils, as shown by the large attendance, that, in the summer of 1905, an arrangement was made with the Department of Public Instruction by which the Society's rooms were placed at the disposal of the Superintendent of Education for the establishment of regular hours of daily instruction in elementary science by illustrated lectures and familiar talks to the grammar school children. These lectures became an integral part of the school requirements and were no longer optional, the attendance of the several grades being made compulsory. Since that time this plan has been carried out each year with most satisfactory results. The lectures are given by Dr. Carlos E. Cummings who is paid by the Society. When not lecturing, Dr. Cummings' time is largely occupied in preparing the lantern slides and the other materials used for purposes of illustration. On behalf of the Society he has made many summer journeys in which he has used his camera to excellent purpose and the Society now owns a collection of over 2500 fine lantern slides made by him which are freely used in its school and other lectures.

The Department of Public Instruction prepares each year a schedule which is sent to each grammar school principal notifying him of the day and hour at which each of the several grades in his school is to come to the Society's lecture room, the lectures being given daily at 10.30 a.m. and at 2 p.m. throughout the school year.

For the physiology classes, in view of the scanty equipment of school laboratories, a full supply of the necessary apparatus and chemicals is provided, so that all the usual experiments may be shown during the

lectures. In the bird talks, actual specimens of birds are first shown and described and it has then been customary to throw a series of pictures upon the screen showing the homes of the birds and the enemies which are liable to attack them. This season the experiment has been made of having a smaller number of children at a time for these bird talks, when the birds, their nests and their enemies are shown them and their habits explained. They examine the mounted specimens individually, are questioned and encouraged to ask questions and a more abiding impression is thus made upon their minds. For illustrating the habits of bees, a hive of live bees is used, the walls being of glass so that bees and comb can be plainly seen. Bee-keeping utensils are explained and a remarkably beautiful series of slides prepared by Dr. Cummings from his own negatives, shows the bees at work upon the flowers.

Cases are arranged in connection with the fifth grade work, showing coal and iron and the mineral products of the United States, and the lantern slides show the localities from whence they come and the geographical wonders of the continent. So also, cases are prepared for the sixth grade work, showing the actual tropical products, such as cocoa, vanilla, cocoanuts, coffee, and rubber, and lantern slides are shown illustrative of their growth and uses. For the seventh, eighth and ninth grades special exhibition cases are arranged in connection with the work of those grades.

During the past school year 234 lectures have been given by Dr. Cummings upon physiology, tropical products, bees, birds, United States mineral and other natural resources and geography. There has been an attendance of about 20,000 children of the several grammar school grades from the fifth to the ninth inclusive, and an additional series of evening lectures has been given by Dr. Cummings on physiology for the especial benefit of grammar school teachers and advanced students from the high schools of the city.

At the close of each lecture the collections of the Museum are visited by the children under the guidance of their teachers. Each year the scope of the work is enlarged with the intent of holding and increasing the interest of teachers and their pupils and of the general public which profits by these educational endeavors. By such means and this direct systematic connection with the Public Instruction of our city, we believe a larger school work in natural science is accomplished and more effective results secured than was possible under the plan of voluntary attendance which was formerly followed.

President Holland.—"The paper is open for discussion and remarks."

Mr. Frank C. Baker (Chicago Academy of Sciences).—"I am deeply interested in this subject as it is now coming to my institution. The public school teachers of Chicago are overburdened with work and they will do nothing unless there be credit for them in advancement of salary. For fifteen years, since the Academy of Sciences has occupied its quarters in Lincoln Park, I have been hoping the time would come when the public school teachers would come to us. I knew it would be time wasted to go to them. This year the teachers took the initiative and came to us for assistance. They said that they realized the nature teaching in public schools was very weak and asked for some loan collections to help out in their work.

"We got together collections in various lines; a few minerals illustrating coal products, and particularly collections of birds, as these requests were made in the spring when nature study consisted simply of bird work. We sent out several hundred collections, about forty schools having made the requests. They also wanted bird talks in the school room. That, of course, pleased us, because we felt this work should be conducted in close connection with the Board of Education and with the schools. So we have given about forty bird talks in the school room during the last six weeks. Each school in Chicago owns a stereopticon, so it was comparatively easy to conduct the talks. The Chicago schools contain 1500 to 1800 children each. In many instances, the talks were repeated three times in an afternoon, the children being divided into sections of three, four, or five hundred each. The talks lasted from twenty minutes to half an hour.

"We have also had the children and teachers come to the museum, and have conducted bird classes in Lincoln Park with good results. My experience has been that the talks have much more value when given before 25 or 30 children than before an assembly of four or five hundred. I also found that much good was obtained from a quiz: showing a picture, for instance, saying one or two words about it, and then asking questions which the children answer.

"Now the proposition before my institution is to take up this work for the city of Chicago. I wish that others interested along this line of work would tell of their experience concerning the relation of the public museum to the public school system."

Mr. C. G. Rathmann (Educational Museum, St. Louis, Mo.).—"I know the American Museum of Natural History in New York is doing excellent work. Could we not hear from Dr. Bumpus?"

Dr. Hermon C. Bumpus (American Museum of Natural History, New York City).—"I think the circulating collections presented by Mr. Toothaker are manifestly superior to any we have sent out, and, as far as my knowledge goes, are the best I have seen, and the best I could conceive.

"In regard to our educational work, we are trying to assist the public schools along three lines. The work has been done under the supervision of Mr. Sherwood, who is better acquainted with it than I am. We wish the teachers to tell us what they want, and then we endeavor to supply their needs. We feel that it is better to loan the collections and circulate them than to donate them. The donations are likely to fall into a state bordering on dissolution. Our plan has necessitated the employment of a considerable staff because there are 500 schools in New York. We send a man out with an automobile, and he keeps the collection circulating. The event of arrival of a collection in a school has, we believe, an educational value.

"We also meet the public schools in a system of lectures, but these are so much like the lectures that are given here, with which you are well acquainted, that I will not emphasize this side of the work.

"Finally, we are thoroughly convinced that it is a proper thing to have a change in the bill board. A person twenty years of age who has visited a museum has a feeling that it is not necessary for him to visit it again; he has 'seen the museum.' Now if any theatre or publishing concern should adopt the policy of an unchanging attraction it would not be successful. We are very much in favor of having temporary exhibits, even though they disturb the general appearance of an exhibition hall. One of these was the tuberculosis exhibit, and at that time we had on one day an attendance of 63,000. The handling of 63,000 human beings in four or five hours of time is a noteworthy performance in the history of museum work. It was felt in connection with this temporary exhibit that it would be a valuable thing to have the public school children see it, but the handling of a large number of school children was a problem.

"The arrival of from six to nine thousand school children gives a chance for great confusion, and our experience may be of a little benefit to you. In the first place, plans for handling them must be already made. We shunted them into halls, two or three hundred in one hall, and there lined them up in rows. All school children will understand how to stand in file. They are like a flock of sheep and if you can keep them in blocks you can control them. We find that they cannot be carried

through the museum unless they have been given a little instruction so that they will understand what they are to see and do. We have a lecture hall seating 1500. There they were told what they would see and then they filed out and passed through the exhibit. As the school children passed, instructors, standing on pedestals, told them what they were looking at. We handled from five to ten thousand children in the morning. Many teachers told us the children were not technically instructed. We persuaded the teachers that they had a misconception of our idea. We intended this visit only for general information, and the teachers all agreed that the time spent by the school children had been profitably spent."

Mr. Henry W. Kent (Metropolitan Museum of Art, New York City).—"In the case of the Metropolitan Museum of Art we have provided a class room where teachers can come with their children and have a lecture with lantern slides or without them, then go into the museum and see the things themselves. We send leaflets telling them about it.

"We also send out lantern slides and lend photographs of collections in our museum. The State of New York, through its department of individual instruction, lends all the photographs and lantern slides that may be needed.

"We have a lecture hall and will give lectures for the teachers and yet it is often perfectly useless to talk to them. Most of you have a great advantage over us, because science is taught in the schools and whatever you, in the museum, tell the teachers, you feel you are talking to persons who know something about the subject. A collection of teachers in the public schools rarely knows anything about art. If the art museum is to work with the schools we must have teachers who know something about art and possess a cultivated taste and a knowledge of style. We should also have a series of supervisors in the schools who shall teach the use of the museum, and until the public school system includes something of that sort it seems to me the only thing the art museum can do is to confine itself to a certain amount of pleasurable talk and lending of things. The real subject is open for the teachers of drawing, designing, and kindred subjects in the schools."

Mr. Wm. M. R. French (Art Institute of Chicago).—"The Association may be interested to know how the school teachers of Chicago became interested in the Art Institute last year. The teachers received credit upon accomplishing certain courses, and, through some inadvertence, the Art Institute was put upon the list. The teachers discovered that the courses given there were agreeable courses. Last year in January

they began to attend the Saturday evening classes in great numbers. We have sometimes had nine hundred at work in an evening. More than 1600 taking actual lessons, passed their examinations, got the credit and nearly ruined the Board of Education. The Board of Education was obliged to strike us off the list. We hope our relation with the teachers will continue. They all know the Art Institute well now and they had a most beautiful time."

Miss. Alicia M. Zierden (Division of Education, Pennsylvania State Museum, Harrisburg, Pa.).—"We begin with the kindergarten and have exhibitions for elementary schools, normal schools and manual training schools. These collections, exhibiting the best work each year of the different schools and institutions, we keep open all the year round as an educational division. Aside from this, we have a lantern slide exhibition similar to the New York State institution. The slides are of various subjects and can be sent out to schools desiring them."

Miss. Delia I. Griffin (Fairbanks Museum of Natural Science, St. Johnsbury, Vt.).—"I cannot add very much to what I said two years ago at Pittsburgh. We are still carrying on the same work at the Fairbanks Museum. Perhaps we differ somewhat in the conduct of the class work. The children bring their own specimens and these are used for illustration of lectures given on various forms of plant life, etc. The children have obtained the specimens out of doors in the fields and woods and have gained interest in so doing.

"We have a large field in colonial material and we are beginning to interest the children in the life which their ancestors lived. We find that the children know so little of historical material that when we have shown a pair of snuffers and tray, they have immediately guessed that the instrument was used to clip fingernails with.

"We take the children on bird walks, and sometimes see twenty or thirty birds in one walk. The children get back in time for school. They used to start at six o'clock but we discovered that was too early for the children and now we start at seven.

"The flower table is, perhaps, one of the principal exhibits. The natural wild flowers are brought in and shown from early in the spring until late in the fall. The flowers are collected, to a large extent, by the children of the town, though the museum force obtains some of them. We began by showing one flower, the hepatica, and when that specimen was faded it was thrown away, but we now keep as many as we can on the table, each one labelled with its common and scientific name and the name of the child who brought it. About the time the County Fair was

held, we had fifteen varieties of goldenrod. Some of the farmers came in and were much interested, for they did not know there were so many.

"One of the chief instruments in keeping the museum before the public is found in the weekly papers. We have a couple of weekly papers in the town, which are read through from the title to the last word, and we intend that no issue shall go out without something under 'Museum Notes.' It may be a column or five lines, but something there is, so the public shall know the museum is alive."

President Holland.—"My old friend Cameron had a new Presbyterian pastor introduced to him and he said, 'Young man, don't forget to keep yourself before the public. Don't forget it, it is an important part of your ministerial existence. Play ball, run to the fires, do something. If the newspapers speak well of you and praise you, fine. If the newspapers slight you, and speak abusively that is not half bad, but if they neglect you, and say nothing at all, it is all up with you.'

"I am glad to know that the wisdom of one of our ancient politicians is being observed in modern New England."

Mr. S. R. Morse (New Jersey State Museum).—"Every year the best work done in our public schools is sent up to Trenton; not only from the public schools, but from the industrial schools and the farm school. This is done to encourage the children throughout the State to know that their best work will be shown in Trenton. At Jamestown I exhibited the work of the schools for the seven different expositions from 1876 down to the present time."

Mr. Baker.—"New Jersey is not ahead of Chicago. I had almost forgotten that I have in my pocket three examples of what the eighth grade is doing in bird compositions. Here they are. These were based on some of the bird talks I have mentioned and they are beautifully illustrated.

"I would like to ask a question about the loan collections. Do you send the birds out as skins or mounted specimens, and do the school teachers regard the mounted specimens as superior to the skins, and why?"

Mr. Rathmann.—"We have about 800 bird collections, which we send out in the course of a year. These all consist of mounted specimens, no skins. The teachers think the mounted bird far superior in appeal to the children. They are put in paste-board boxes and the museum man takes them to the schools. We get the birds back in fair condition. Every year we have to send out mounted birds and animals to the taxidermist, but we have been pleased to see what excellent care has been taken of them."

President Holland.—"I do not want the impression to go abroad among you that we, in our great city, have been neglectful of our duty in this matter. For many years we have been loaning bird collections in a glass case with a handle which can be carried. We also send out minerals, plants, and insects. There is a constant demand from the summer schools and playgrounds.

"In the matter of coöperation of the art schools in this work, I cannot understand what was said by our friend from the Metropolitan Museum of the advantage of science over art. In the state of Pennsylvania there is great attention paid to the instruction of teachers in the elements of art. There is a generation of young Americans coming forward, being instructed in the art of free-hand drawing and among them are many Raphaels and Michael Angelos."

The Association then proceeded to ballot for the election of officers for the ensuing year, with the following result:

President:

Frederic A. Lucas, Curator-in-Chief, Museums of Brooklyn Institute of Arts and Sciences, Brooklyn, New York.

Vice-president:

Frederick J. V. Skiff, Director, Field Museum of Natural History, Chicago, Illinois.

Second Vice-president:

Edward S. Morse, Director, Peabody Museum, Salem, Mass.

Secretary:

Paul M. Rea, Director, The Charleston Museum, Charleston, South Carolina.

Treasurer:

W. P. Wilson, Director, Philadelphia Museums, Philadelphia, Pennsylvania.

Councillors, 1909-1912:

W. J. Holland, Director, Carnegie Institute, Department of the Museum, Pittsburgh, Pennsylvania.

James E. Talmage, President, Deseret Museum, Salt Lake City, Utah.

The Association adjourned to inspect the Free Museum of Science and Art, and then to the Wistar Institute of Anatomy and Biology, where Dr. M. J. Greenman gave a paper and demonstration on "Some of the Most Recent Museum Instruments and Appliances," after which tea was served. The session was then adjourned.

SESSION OF WEDNESDAY, MAY 12

Evening

The Association convened at the School of Industrial Art, Vice-president Frederic A. Lucas in the chair. The first paper was presented by Mr. William M. R. French, director of the Art Institute of Chicago.

THE PLANNING AND FITTING OF EXHIBITION ROOMS,
ESPECIALLY PICTURE GALLERIES

It is a singular and regrettable fact that when a museum building is built, the opinions of the director and his assistants are not always sought and followed. Often the museum director or librarian explains to his guest that he has had nothing to do with planning the building, and wishes many things were otherwise. Too often, considerations of external architecture prevail, and the exhibition rooms are resultant forms, instead of the predominant factors that they ought to be. A lively architect, talking upon the subject, said, "Why, of course the architect wants to make a fine architectural exterior. What is the use of regarding the people inside of the building? Think how few they are compared with the people outside!"

Perhaps the most common bad result of this principle is the production of deep, well-like galleries. More than forty years ago, when the building of the National Art Gallery in London was under discussion, the well-known art critic, Philip Gilbert Hamerton, proposed the construction of a wide area of one-story, skylighted galleries, and the erection of a handsome architectural screen or narrow building in front of them, a suggestion containing much good sense. Simplicity of plan is greatly to be desired, that is, such a disposition of rooms that the visitor may be able readily to grasp the arrangement and to know all the time where he is, as he passes through successive rooms. Such simplicity is by no means an easy thing to secure, and perhaps impossible in a large museum of many departments. The arrangement of the new Boston Art Museum in half a dozen distinct departments is a most interesting one. But few museums have numerous definite and well-developed departments, and the growth of departments is usually so uncertain and so dependent upon accidental opportunities and tastes, that in most cases the safest and most practicable policy is to build a sort of homogeneous building of well-lighted, well-related, and well-proportioned exhibition rooms, which may be appropriated by the departments according to their needs.

In skylighted areas it is highly desirable that the outer and inner lights be not very far apart, that is, that the outer skylights be not very high above the inner ceiling lights, so that the light will not have to enter through deep wells. This of course implies rather a flat roof.

The Romanesque and Gothic styles of architecture cannot well be employed for exhibition buildings, because they depend for their effects upon broad wall-spaces, high roofs, and windows with arches, mullions, and transoms, while exhibition buildings must sacrifice roofs to skylights and walls to large and unobstructed windows. Classic or Renaissance, or some modern modification of style must almost of necessity be adopted. A kind of depot or exposition construction is probably the cheapest, but unless it is treated merely as an outside shell, it is apt to lead to large, inhospitable exhibition rooms. In general, I regard very large rooms as undesirable, excepting for the exhibition of very large specimens, such as the extinct monsters and whales of the natural history museums, the boats and totem poles of the ethnological collections, and the architectural casts of the art museums. Rooms 200 by 80, and 50 or 60 feet high, are none too large for these, and such rooms give the architect proper motives for large central masses in his building. For other objects I think it rare that rooms larger than 60 or 80 by 35 or 45 feet are desirable, and not many such are needed. For the width of side-lighted rooms my observation would lead me to the opinion that about once and a half the height of the windows is as far back as can be satisfactorily lighted; and the windows should be square-headed. That is, if the window is 20 feet high from the floor, the room may be 30 feet wide. Of course you can light tolerably much farther back than this.

As an art museum man, I am naturally much affected by æsthetic considerations, and I believe the agreeable effect of moderate-sized galleries of varying dimensions, and, if possible, of varying heights, is too much overlooked. Let me enforce this idea, for it is what I had chiefly in mind when I undertook this paper. I believe that large, uniform galleries produce a weariness in the visitor, of the cause of which he is unconscious, while well-proportioned rooms of different shapes and sizes produce what somebody has well called a "sympathetic" effect, and encourage him to the study of the specimens and objects. This principle appears to have been observed in the new Boston Art Museum. A man making a cursory visit to a museum, after going down one side of a gallery 120 feet long, is reluctant to go back upon the other side. The proportions of rooms also are worthy of more study than they usually get. My observation is that skylighted picture galleries are apt to be made too

high, perhaps because there is something seductive in the idea of loftiness. But modern practice with regard to the hanging of pictures is much improved, and we rarely hang more than two lines of pictures one above the other, for which 9 feet of vertical wall space above the "line," or about 12 feet from the floor, is ample. This, with the cove, gives height enough for galleries of 45 x 30 feet.

I am perhaps partial to our galleries of the Art Institute of Chicago. I have indeed met with few galleries as well adapted to their purposes, that is, as agreeable to the visitor, and as becoming to the pictures and objects of art. Of course this is partly due to suitable decoration, but greatly also, I am convinced, to the features of which I have been speaking, namely, justness of proportion and variety in the dimensions of the rooms, for which our architect, Mr. Charles A. Coolidge, should have full credit. The plans which accompany this paper show the two floors of the building. Though it is only lately that I have observed it definitely, it will be seen that in no case are there two similar rooms adjacent to each other. Excepting the great architectural sculpture room, Blackstone Hall (about 210 x 60 feet) and one other sculpture room (No. 3, which is 90 x 27 feet) there are no rooms larger than 50 x 40 feet. The picture galleries measuring 45 or 50 x 27 feet (Nos. 27, 32, 38, 42, 46, 48, 51, 53) are found a very convenient and tasteful type, and pictures always look well in them. In the main floor the large square windows are 16 feet high and the rooms, in accordance with the principle mentioned above, are 27 feet deep, except at the corners of the building, where they are 38 feet deep.

In our building the external roof is entirely of glass. In the sky-lighted rooms the ceiling lights extend over almost the whole room, the coves being kept very narrow, less than 2 feet in horizontal measurement in the smaller rooms, and less than 3 feet in the larger ones. These things we believe to be right, at least in our climate. It is much easier to shut out light, if excessive, than to add it, if deficient.

The color of floors can scarcely be too dark in a sky-lighted gallery. A black floor under a skylight often shows very light in a photograph. Some of our floors are of wood, which we stain occasionally with linseed oil and prussian blue; some are of mosaic of more or less dark colors, but our latest practice is to make the floor of cement, with a border about a foot wide of black marble, the marble being laid flush with the cement. The floor is covered, with the exception of the marble border, with dark cork carpet. Wooden floors, however, are decidedly preferable for galleries in which passing exhibitions of varied character are to be held,

for two reasons: first, that picture frames, casts, and fragile objects are much less likely to be injured when set about on wooden floors than on cement or mosaic floors; and, second, that it is frequently desirable to attach pedestals, screens, and other constructions to the floors, which is not easily done on cement or mosaic.

With regard to walls, the dado or wainscoting is of black keen cement, the picture rail or "line" is of cement but has a nosing of wood, on which the pictures rest. Above the line the wall for 7 feet is lined with $1\frac{1}{2}$ -inch wood ceiling laid close against the plaster, and above this there are vertical wooden strips 3 inches wide and $1\frac{1}{2}$ inches thick extending to the room cornice, 16 inches apart, the whole covered with cloth of red or gray-green tones. In spite of the traditional practice of providing horizontal strips, vertical strips in the wall are much better as a support for the hanging of pictures.

Undoubtedly the decoration of exhibition galleries of any kind should be very simple and quiet, although in art galleries it may be rich, if means permit.

Chairman Lucas.—"Mr. French's most interesting paper is before the Association for discussion."

Question.—"What is your preference as to color for walls?"

Mr. French.—"Some prefer gray-green walls for the Barbizon School, but for old masters my opinion is that the dull red is better. It was a foreign visitor, who used the expression, 'sympathetic galleries.' In Vienna, in the Royal Galleries, they have a turquoise wall. I did not like it. A little figure of two shades of the same color is good. Plush and velvet are good fabrics, when you can afford them. Mr. Ruskin says that buff, a strong color, is good. We have a few old masters and I hung them on a drab but they look horrible. You can make those old browns look like molasses, if you do not have contrasts."

Chairman Lucas.—"We will now pass to the consideration of the second paper, by Mr. Benjamin Ives Gilman, of the Museum of Fine Arts, Boston."

MUSEUMS OF ART AND THE CONSERVATION OF MONUMENTS

REGISTRY, STUDY, PUBLICITY

Conservation is the essential office of museums. Since antiquity, places where objects are permanently kept for public show have been

called by this name. A museum is defined as a building devoted to the collection, preservation, and exhibition of works of nature or art, and in common usage the persons in charge are called curators or caretakers.

The need of concerted effort to care for instructive and beautiful objects outside museums has been felt and met only within the past century. Beginning with the French law of 1792 relating to the destruction or removal of historic or artistic treasures, the movement is now represented by a large body of similar measures in many countries; by territorial inventories—those of the German and other governments; by associations local and general—among others the Heimathschutz unions now multiplying in Germany, the National Trust in England, the Scenic and Historic Preservation Society in this country; and by national boards—among others the Italian Uffizi regionali per la Conservazione dei Monumenti, the French Commission des Monuments Historiques (1837), and the departmental commissions established in France under the law of April 24, 1906.

The purpose of this essay is to recommend to museums in America an extension of function, carrying with it the leadership of such a movement. The new office proposed to them is that of public information regarding outside objects germane to their purposes. Its possible scope includes all neighboring objects of public interest, whether instructive or beautiful, natural or artificial. The argument is here addressed directly to museums of art but offered also, *mutatis mutandis*, for the consideration of museums of natural science. Doubtless museums of history also might usefully supplement the efforts now making here and there throughout the country to preserve our memorials of antiquity.

Let American museums of art no longer confine their interest within their own walls. Let each take its neighborhood for its province, acquiring and imparting information about any local works of art, public or private, whose owners may offer them for the purpose. A knowledge of what we have is the necessary and often sufficient condition of its preservation, and museums may thus indirectly make the circle of their conservative activity complete.

Aside from certain conspicuous instances, the Hancock House in Boston, the P'Enfant plan of Washington and others, there has as yet been comparatively little occasion in America for efforts to protect our artistic inheritance. The occasion will surely come. Let it find the art museums of the country organized in defence of its artistic monuments. Let the museum of each locality become a rallying point for such a movement. Where no museums yet exist, let them be founded for this pur-

pose only, until a building be needed as a new anchorage for such of their charges as are set adrift. Whatever a museum may accomplish in gathering and spreading information about the monuments of the region will be so much gained. Were the data all held in the drawer of a desk, time might easily make them priceless memorials.

Such a registry of local art may properly, easily, and advantageously be carried on by museums of art. Properly, because it is a work implying no responsibility beyond that of acquiring and giving information; and the information of the public on matters of fine art lies within the charter purposes of every museum. Easily, because every museum has already at its disposition for its own purposes an apparatus of registration, investigation, and exhibition, and a more or less numerous staff of persons competent to use it. Advantageously, because the conservation of monuments is a work of eternal vigilance better entrusted to the initiative of a permanent institution than to voluntary societies.

In a word, the present proposal makes the whole duty of museums of fine art one of watch and ward, and not ward alone as hitherto. Continuing as guardian of its own treasures only, the museum would be brought into relation as visitor with everything of like kind about it. More specifically the museum would undertake *to prepare and maintain an inventory of works of art outside its walls which are interesting and accessible to the public, and to promote the enjoyable and profitable study of them by all.*

In pursuance of this purpose the museum would schedule, investigate, and popularize any specimens of fine art in its neighborhood which the owners might offer and the museum think worthy. So registered they would be certified as available for public exhibition under conditions agreed on between the owner and the museum, the owner retaining entire control and the museum accepting no responsibility.

In detail the three duties of visitation would be the following:

1. The accurate or complete *registry*, by description, measurement, photography, and otherwise, of such buildings, monuments, paintings, sculptures, etc., in the locality as the museum might consider of public interest from an artistic point of view, and the owners might be willing to have treated in greater or less measure as public exhibits. The foremost class of such objects would be works of art belonging to the municipality, commonwealth, or nation, which doubtless should all be inventoried, however unequal their artistic merit. In the case of objects privately owned, the museum would wish to proceed carefully and with the advice of the best organized opinion in the city on the various arts.

2. The artistic and historical *study* of the specimens so scheduled, the accumulation of data about them and the artists, and the publication of results upon occasion. This study might lead at times to the recommendation of measures looking to the preservation of the scheduled objects and their utilization as works of art.

3. The management of the *exhibition* and exposition of registered objects to the public, either in place, or, in the case of movable objects, in the museum. The museum would undertake to aid the public in seeing registered objects intelligently by publishing lists or other accounts of them, organizing visits thereto, and in other ways; and in the case of works shown on private premises to provide such protective means, (custodians, etc.) as it would employ in its own galleries and grounds.

The visitation of public monuments as thus understood interferes with no existing agency for the promotion of art, but usefully supplements the work of all. Historical societies and unions for scenic preservation are founded in the interest of old association and natural beauty, not fine art. Art schools and leagues, village improvement societies, municipal art commissions and national art associations are all creative sources. What these achieve, the museum will help to conserve by making it known. The museum will be the means through which the country will take account and advantage of its artistic progress.

Where data are already complete and the facilities of exhibition ample, the museum will need only to record the fact in its registers. Doubtless municipal and professional archives exist, with whose aid a close copy of Independence Hall could be constructed were the original destroyed; doubtless also the building is publicly shown and commented upon as fully as practicable. But what photographs, technical descriptions, or historical documents now represent the lost Hunt frescoes in the Albany capitol? Do data exist, and where are they accessible, that would ensure to those who have never seen d'Angers' statue of Jefferson at the Capitol in Washington, a proper estimate of that work? Do sculptors generally even know of its existence? Plainly the record of our public artistic riches, to say nothing of the private collections occasionally shown publicly, is fragmentary and inaccessible, and most of it, moreover, is unauthoritative. So it might remain, however far the schemes now on foot for the preservation of antiquities and scenery and for the promotion of art were to be developed. The place of visitor to public monuments is empty for the museums of the country to fill.

Five good results might be anticipated from the acceptance by museums of this new duty:

1. The museum would be connected with current artistic production permanently and healthily. Always on the watch for any new and important acquisition of the neighborhood, it would fully record the origin, character, and purpose of the work before any of the facts were forgotten. Becoming interpreter and advocate of living art, the museum would nourish but not pamper it, winning but not granting it commissions.

2. The museum would appear in its true light as purely an agency of conservation, offering asylum to waifs and strays of art, but equally interested in the security of works still in their places. Zeal to preserve artistic treasures within gallery walls does not permit indifference to the fate of others without. To have no eyes for the present would be to impugn one's sense for the past, and conversely, to concern one's self with art still alive, is to deepen one's comprehension of its remains. A museum active on behalf of the monuments of its neighborhood acknowledges itself the refuge, not the home, of the objects of art it shelters.

3. Architecture, the third and chief of the material arts, would be brought within the circle of museum interests. Painting and sculpture alone (with their minor derivatives) can be represented in exhibition galleries by intact original works; architecture only by fragments or reproductions. A large share of the more important monuments of any neighborhood being works of architecture, the museum, by undertaking their registry and publicity, would complete its representation of the material arts. The architects on museum boards would find opportunities of service hitherto lacking.

Geology among the sciences presents on this point an analogy with architecture among the arts. By undertaking the registry and publicity of instructive natural features in their neighborhood, museums of science would for the first time represent geology otherwise than by fragments and reproductions.

4. The proposal adds to the present museum what might be called an out-door department. The Nordiska Museum in Stockholm has a park (Skansen) filled with examples of old Swedish architecture, which has been a successful adjunct to its indoor collections, and has found imitators. As visitor a museum would give and call attention to outside objects without waiting for their withdrawal from use.

5. The scheme would ensure to the museum a permanent source of enrichment. A probable result of the registry and publicity of outside objects under museum auspices would be their frequent transfer to the museum for permanent enjoyment by the public.

Finally, the plan should commend itself, first, to museums, because it

offers the opportunity of a novel and important public service; second, to other owners of objects of art, because museum registry of a work would give it distinction, increase its influence and safeguard its future; and third, to the people at large, because the museum would henceforth be their representative, alert to see that all interesting and accessible works of art in their neighborhood should be utilized for public benefit.

Once more addressing museums of science, this essay recommends that the museums of America add to their function of collecting, preserving and exhibiting instructive or beautiful objects of nature or art the office of recording, studying and making known like objects in their neighborhood.

Chairman Lucas.—"Are there any remarks on Mr. Gilman's interesting paper? The City of New York is at present engaged in making a complete catalogue of all the paintings and statues—whether indoors or outdoors—owned by the city. It has had difficulty in getting track of some of its possessions, and finding the history of them."

Secretary Rea.—"I wish to testify to the suggestiveness of the ideas Mr. Gilman has put forth. I might mention in this connection two projects which the Charleston Museum is carrying out, and I would like to know if there are other museums doing the same thing. The Museum has discovered two colonies of the beautiful snowy heron on our coast. There is no other way of protecting them than for the Museum to lease or purchase the islands. Such an arrangement is now being negotiated, and I hope will be accomplished.

"My attention was called by a visiting botanist to the grave of Thomas Walter who was buried on his plantation on the Santee River. I found it an interesting place and the tombstone well preserved. Growing about the grave were plants perhaps planted by Walter or his descendants. I went down town and found the owners. I told them it meant a great deal to us to preserve such a place, and they told me that when they got a lawsuit off their hands in regard to the ownership, they would be glad to transfer it to us.

"I would like to know if other museums have considered doing anything of that sort."

Mr. George Francis Dow (Essex Institute, Salem, Mass.).—"At Salem the Institute has a curious glacial boulder, probably carried to its present resting place from a distance of several miles. We are holding this as a natural relic."

Dr. Miller (School of Industrial Art, Philadelphia).—"There can be no question as to the importance of Dr. Gilman's suggestions. It seems to me that the city, the state, the government itself should officially recognize the importance of such conservation as this and coöperate with every institution and association that is engaged in this work. There is enough for them all to do, but they are doing it in a disassociated, independent way."

Dr. Oliver C. Farrington (Field Museum of Natural History, Chicago, Ill.).—"I want to thank Dr. Gilman for his paper. He has very properly pointed out that it is often difficult if not impossible to transfer these objects to museums, and in many cases where artificial reproductions are attempted they have been failures. Some of us have seen in Crystal Palace Park in London, attempts to reproduce natural features. Dr. Gilman's excellent suggestion that the attention of museums can be directed to this feature of conservation can be carried out. To a certain extent photographs can be obtained. This we have done in Chicago. The old beaches in Chicago are rapidly disappearing, because they are being built upon, and the photographs preserve them to a certain degree."

Prof. William H. Goodyear, curator of fine arts in the Brooklyn Institute Museum, then presented the following paper:

THE DESIRABLE PROJECTION OF ART MUSEUMS AS SUGGESTED BY THE DESIRABLE CLASSIFICATION OF ART LIBRARIES

INTRODUCTION

Within the last few months a bequest amounting, with accrued interest, to some six thousand dollars became available for additions to the art department library of the Brooklyn Institute Museum.¹ Purchases for the art department library to the amount of some five thousand dollars (including expenses for periodicals and their binding) had been made under my advice since 1900, and the Museum had inherited, from the older Institute library, various important works on art which might add another one thousand dollars to the total library value.

¹ The bequest of Samuel Bowne Duryea of Brooklyn was made in favor of the Brooklyn Art Association, whose trustees have placed the works purchased under the bequest in charge of the Museum of the Brooklyn Institute of Arts and Sciences.

The task which fell to me of suggesting purchases under the bequest naturally involved a survey of our previous acquisitions and the creation of such a classification as would make it possible to supplement and round out the art department library in a systematic and comprehensive manner, as far as a total sum of some twelve thousand dollars was concerned.

The question which I was led to consider was apparently this:

What selection of individual books should be made for a museum of art which is able to spend twelve thousand dollars on a library? There was evidently, however, another question underlying this one, viz: What classification of these books should be projected? If the new works were chosen without first creating a classification system, it would be impossible to balance up the new purchases, so that they might round out and supplement those which had been previously made. Former purchases had naturally been made from the standpoint of the needs of the curator for special collections and special studies at special times, and consequently could not be made from that systematic and comprehensive point of view which now became necessary. What was needed, therefore, was a classified bibliography of works on art, balanced for all topics and periods, and amounting in total value to the sum of about twelve thousand dollars.

The Museum enjoys the services of a most excellent and highly qualified librarian and this librarian had adopted and employed what is known as the Dewey system of classification. This, I believe, is the library system most widely adopted in the United States, and it is also said to be widely employed in Europe. Our library not only includes science, ethnology, and history, but it is, in other directions, a general library, as a result of inheriting the older Institute library, which was the original essence and visible beginning of the Brooklyn Institute of Arts and Sciences. The Dewey classification had been adopted for the general library, and its divisions for the art department had consequently been followed.

Thus it happened that a curator of fine arts was led to study the Dewey system, as far as it relates to art. The Dewey system is said to be an excellent system for the purpose of enabling a librarian to find rapidly the book which may be called for. Now I believe that the best system for such a practical purpose must always be the system with which a librarian is already familiar and that from this point of view no system is ever as good as the one which he has invented himself, because he naturally understands and remembers it a little better than any other.

The results of my examination of the Dewey system were as follows:

No art library should in future adopt the Dewey system.

No new art library could be projected or planned, as a systematic whole, on the Dewey system.

No one can tell from access to the shelves arranged on the Dewey system what an art library really possesses.

No one can properly supplement, or round out systematically, an art library already existing and arranged on the Dewey system, until a new classification of its present possessions has been made.

So far, the results of my research might appear to be of interest to librarians, rather than to museums, therefore I will now proceed to formulate another proposition, as follows: the natural and logical projection of an art museum should, in general terms and with obviously desirable and easily made modifications, be the same as the natural and logical projection of a classification for the books of an art museum or of an art department library. So, if we inquire what the arrangement of such a library ought to be, we are, as far as my views are concerned, stating also what the general arrangement and general plan of an ideal art museum ought to be.

We are led immediately by such a proposition to examine the following vastly important questions:

How far must the ideal museum of art history admit deficiencies which only books can supply?

How far can an existing museum supplement by illustration,—possibly casts, possibly photographs, possibly plate publications,—such deficiencies as might not exist in an ideal museum, but which are certain to occur in all real museums, however relatively ideal they may be? Therefore, while I am ostensibly speaking of a bibliography of books to cost about twelve thousand dollars, and while I am ostensibly speaking of a desirable classification for such books, I conceive myself to be actually speaking of the ideal arrangement and projection of the ideal art museum and of commendable partial arrangements for the actual museum, which can never strive to be better, unless it has a plan, and unless it realizes and announces its own deficiencies.

THE DEWEY SYSTEM

Descending for a moment from the high plane of theoretical propositions and plans to the lower but more convincing plane of actual experience, allow me to offer some illustrations of the deficiencies of the Dewey system.

I had asked our librarian for a list of books in the art department library. This list was duly furnished. Some months later, when I began to examine the list, various books occurred to me as having been purchased, which did not appear in the list. On inquiry it turned out that they had been unintentionally omitted. The reason was that such books had been classified under "archæology" or "travel" and not under "fine arts." Now a book which is classified under "archæology" or "travel" on the Dewey system cannot be classified under architecture, sculpture, painting or even under the general history of art.

Properly speaking, it is manifest that the term "archæology" includes all architecture, all sculpture, all painting and all other arts of all the ancient oriental, and classic, nations. Although, when mediæval studies are in question, we are more likely to use the term "antiquarian" than the term "archæologist," the term "Christian archæology" is also not only defensible, but it is actually the sub-title of a very excellent book on the subject of early Christian art. It is evident therefore, that the term "archæology," as properly and generally used, overlaps and includes so many subjects that it is indefensible as a general heading in classification. The term (when used in its proper sense) never ought to be admitted into the major headings of a classification. For, in the accepted sense of the term, Pompeiian paintings are archæology, while Renaissance paintings are not archæology. In the accepted sense of the term, Greek sculpture is archæology, Renaissance sculpture is not archæology. But even Greek sculpture is not archæology on the Dewey system. Even Pompeiian paintings are not archæology on the Dewey system. As a major heading, therefore, the term history of art should replace the term archæology.

In the Dewey system, "archæology" practically includes anything the librarian chooses to put into it which does not visibly and distinctly belong to some other art classification. It is the limbo of books that are not distinctly to be put somewhere else; but the books which distinctly ought to be put somewhere else in the Dewey system, really belong to archæology. In the Dewey system archæology is theoretically *a subdivision of biology*. We are saddened by the thought that logic does not rule the Dewey system, because sculpture and painting and architecture, although they are undoubtedly archæology for the ancient periods, and even for the early Christian, are not found under "biology." On closer study we find that the Dewey system theoretically confines archæology in the large sense to prehistorics, but the unfortunate librarian very naturally puts the *Revue Archæologique*, which rarely publishes

anything prehistoric, and the American Journal of Archæology, which is almost wholly confined to classic art, on the same shelves with Lubbock and Tyler.

However, under "geography and travel" we find a subheading for the "antiquities and archæology of individual nations." Thus things pertaining to "excavations" go under a subheading of "geography and travel." The Dewey system seems to take it for granted that excavations have nothing to do with architecture, sculpture, or painting, and that anything which is not very popular may as well go under archæology as anywhere else. Devotees of the Dewey system are not encouraged to ascertain the fact that books on excavations might possibly relate to the general history of art and go under it in their proper subdivision.

Next to the inspiration which places "archæology" under "biology," I note the insertion of "landscape gardening" between general works on the fine arts, on the one side, and special works on architecture, sculpture and painting on the other. I discovered this feature of the classification by accident. In looking over the new shelves for the works on Japanese art, I naturally supposed that they were placed together and that what I saw on the given shelves was all we had. My eyes fell on Professor Morse's "Japanese Homes and their Surroundings," and it occurred to me that we had a book by the well-known architect, Mr. Ralph Adams Cram, on "Japanese Architecture and Related Arts," which did not appear on the shelves. I asked for the book and was told that it was in the library and properly shelved, but that the Dewey system required it to be placed with general works on the fine arts. It was shown me at some distance away. I then noticed a large number of books on landscape gardening to be intervening, and I found that the Dewey system ordered things in this fashion.

As another illustration of the Dewey system, I will say that a book relating to Egypt may be catalogued and shelved under "fine arts" in general; it may be under "architecture," "sculpture," or "painting," or it may be under "archæology" or under "travel." The latter I found to be an extremely attractive shelf division. Any one who has told us something about the archæology of Egypt, who has been so unfortunate as to travel, is very apt to find his books under that general and inspiring division of scientific knowledge.

It may be added here that I wish everything which I have said about the Dewey system to be taken in a purely Pickwickian sense as far as Mr. Dewey is concerned. I have met Mr. Dewey personally

and found him a charming companion. I have no doubt that he employed an expert to do this part of the work for him, and I think it quite likely that this expert will never reap his full reward.

Is there anything better than the Dewey system? There must be something better because nothing could be worse. Hence I offer, with great confidence, my own system as being something better, and there is this to be said in its favor: it is not at present a theoretical system. It is a system which has, in practical use, offered a convenient working classification for twelve thousand dollars' worth of books. The test of a classification is that it does not leave one in doubt where to place an object or a book, as the result of overlapping categories. The system in question has been used for a card catalogue representing every work mentioned in the bibliography, whether already owned, or not owned, and desired as a purchase. My personal experience is that after this classification was drawn up, all these cards, representing as many works, were distributed as fast as hands and eyes could work.

This system is, therefore, not a theoretical classification. It works in practice. A scholar, who looked over the classification, remarked that it seemed a good one, but that a subheading for "utensils," had been forgotten under antiquity. I pointed out that there are no extant books on ancient utensils, although there are some which embrace this subject with many others. Hence this is a matter for cross-references in a topical catalogue, but not a proper heading for a book classification. This point is mentioned as an instance of the difference between a practical and a theoretical classification of books, also as indicating the many manifest and necessary discrepancies between a classification of books and a classification of museum material.

Another instance of the difference between a theoretical and a practical classification of books is instanced by the absence of a heading for "glass" under Greek art, although such a heading is found under Roman art. This is not because there is no ancient Greek glass but because there is no special book on the subject—the finds never having been sufficiently numerous to warrant a book.

One point in passing, as to the practical use of the proposed classification in libraries which have already introduced the Dewey system, or some other system which may possibly be inferior to the one proposed. The reclassification of a library which is already well under way, is probably impossible in most cases. No librarian will assume such a burden, which involves the renumbering and redistribution of a card catalogue which has required several years for its building up.

For such cases it may be pointed out that a good topical classification by a special card catalogue is always to be desired. The classification now proposed will always be available for the making of a topical card catalogue, and will be of most use, in such cases, to the libraries which are now using the worst system and which are obliged to retain it. Such a topical catalogue becomes necessary as soon as the shelves themselves do not show together the books which belong together.

If it be suggested, on the other hand, that a good topical card catalogue makes it a matter of no concern as to what shelf arrangement be adopted, and that the Dewey system is as good as any, provided a good topical card catalogue be accessible, I can only answer that such a good topical catalogue, outside of my own, is not yet extant in proper classification for scholars' use, to my knowledge. Moreover, all scholars who use a library prefer to go directly to the shelves, and consequently prefer to have books which belong together, kept together. They can learn much more rapidly from the shelves, than they can from a card catalogue, what a library possesses in a given field, and they can test the value of a book previously unknown to them much more rapidly by taking it down, than they can by calling for it through a card catalogue.

Having thus disposed of some possible indifference to the proposed classification, which indifference will inevitably affect those persons who may suppose that they are called upon to upset and revise an already established system in an already existing library, we come to the classification itself, as presented below.

THE PROPOSED SYSTEM

COMPENDIUMS AND WORKS OF REFERENCE

BIBLIOGRAPHIES

ENCYCLOPÆDIAS AND DICTIONARIES OF ART AND ARCHITECTURE
MUSEUM HANDBOOKS CLASSIFIED BY CITIES IN ALPHABETIC
ORDER

SETS OF HANDBOOKS

Bibliothèque de l'Enseignement des Beaux-Arts; Artists' biographies in series; Sets of miscellaneous popular summaries of Industrial and Decorative Art. Handbooks of Travel for Art Students. General Works of Travel for Art Students (countries in alphabetic order, cities in alphabetic order)

GUIDES AND HANDBOOKS OF TRAVEL

GENERAL HISTORIES OF ART

General Histories of Architecture; General Histories of Sculpture; General Histories of Painting; General Histories of Industrial Art; General Histories of Ornament

HISTORY OF ART. ANTIQUITY

GENERAL HISTORIES OF ANCIENT ART

EGYPT

Popular introductory works to Egyptology; Cairo Museum; Official publications on excavations by authorities of the Cairo Museum; Folio plate publications in order of appearance; Egyptian Exploration Fund; Egyptian Research Account; Prehistoric and early Dynasties; Other Recent Excavations; Architecture; Archaeology; Manners and Customs; Pottery; Textiles; Ornament; Scarabs; Religion; Mythology; Papyri; Hieroglyphs; Records and Inscriptions; Coptic period; Arabic period; Modern period; Political and Social History

ASSYRO-CHALDÆA

Chaldæa; Assyria; Persia; Hittite Mesopotamia; Asia Minor

SYRIA AND PHŒNICIA

ÆGEAN AND EARLY MEDITERRANEAN ART

Cyprus; Crete; Mycenæ

GREECE

Topography and Travel; Monumental plate publications; Architecture; Ornament; General Art Histories; Sculpture; Terracottas; Pottery; Coins and Gems; Antiquities and Archaeology; Æsthetics and Criticism; History, political and social

ITALY AND ROME

Prehistoric and Bronze Age; Etruria; Rome (the city); Pompeii; The Empire; Architecture; Art and Archaeology; Coins and Gems; Glass; History, political and social

HISTORY OF ART. MEDIÆVAL PERIOD

MEDIÆVAL HISTORY, CULTURE and CIVILIZATION

PREHISTORIC AND BRONZE AGE. General works, as introduction to Mediæval Art

PREHISTORIC AND BRONZE AGE IN NORTHERN EUROPE

Including early Roman influence in Northern Europe, and including early Christian influence in Britain

Spain; Germany; Gaul; Britain; Scandinavia; Russia

BYZANTINE AND SARACENIC ART

Byzantine art, general histories; Saracenic art, general histories, Persia; Syria; Asia Minor; Constantinople; Cairo and Mohammedan North Africa; Mohammedan Spain

EARLY CHRISTIAN AND MEDIÆVAL ROME

General; The Catacombs; Mediæval ivories; Mediæval miniatures

MEDIÆVAL ARCHITECTURE

Plate publications, general; Books, general; Italy, plate publications; Italy, books; Germany and France, plate publications; Germany and France, books; Great Britain, plate publications; Great Britain, books; Spain; Scandinavia; Russia

MEDIÆVAL ART

Iconography; Sculpture; Industrial and Decorative Art; Mosaics;
Painting

GENERAL HISTORIES OF ART, including Renaissance and Modern Art

HISTORY OF ART. THE RENAISSANCE AND MODERN PERIOD

RENAISSANCE CULTURE HISTORY AND BIOGRAPHY

GENERAL RENAISSANCE ART HISTORIES

Including the Mediæval period

RENAISSANCE ART, GENERAL WORKS

Excluding the Mediæval period

RENAISSANCE ARCHITECTURE. PLATE PUBLICATIONS

Renaissance architecture, books, exclusive of plate publications:

Italy; Spain; France; Germany; Great Britain

RENAISSANCE SCULPTURE

Related Biographies

ITALIAN PAINTING

General works; Special and critical works; Biographies
of artists

SPANISH PAINTING

General works; Biographies

GERMAN, FLEMISH AND DUTCH PAINTING

General works; Special and critical works; Biographies; Etching
and Engraving

ENGLISH PAINTING. HISTORIC AND MODERN

General works; Special Biographies

AMERICAN PAINTING. HISTORIC AND MODERN

FRENCH PAINTING. HISTORIC AND MODERN

General works; Special Biographies

MODERN PAINTING. General works

MODERN ETCHING AND ENGRAVING

MODERN ARCHITECTURE

MODERN SCULPTURE

MODERN INDUSTRIAL AND DECORATIVE ART

Critical and educational: Special histories; Furniture; Metals;
Plate; Ceramics; Textiles; Lace; Costume; Ornament

CRITICISM AND PHILOSOPHY OF ART

Historic Art: Architecture; Sculpture; Painting; Ornament; Æs-
thetics; Miscellanies

TECHNICAL INSTRUCTION

COINS

ANCIENT, with cross references to Greek and Roman
 MEDIEVAL AND MODERN ORIENTAL

ORIENTAL ART AND ARCHITECTURE

PERSIA CENTRAL ASIA INDIA
 CHINA AND JAPAN, Collective CHINA Ceramics, Miscellanies
 JAPAN, Ceramics and Cloisonné, Miscellanies

PRIMITIVE AND SAVAGE DECORATIVE ART

PERIODICALS

SUB-HEADINGS BY COUNTRIES IN ALPHABETIC ORDER.

Subdivisions by Territories according to geographic contiguity and sequence of evolution.

AMERICAN ARCHITECTURE AND FINE ARTS; AMERICAN
 ARCHÆOLOGY; FOREIGN ARCHITECTURE AND FINE
 ARTS; FOREIGN ARCHÆOLOGY

REPORTS OF SOCIETIES

Alphabetic arrangement by cities.

Within any given sub-heading the arrangement now followed in the Brooklyn card bibliography, is by authors, arranged in alphabetic order, but the use of a decimal numbering system is undoubtedly to be recommended. In this direction, suggestions (not as to the choice and arrangement of numbers, but as to the method of employing decimal numbers) may be taken from the Dewey, or Cutter, systems, to great advantage. I am inclined to suggest an alphabetic lettering for the major headings (large capitals); a numbering by hundreds for the headings under major headings (small capitals); and units for the subdivisions under sub-headings (upper and lower case type). For individual books under a subdivision, I should suggest the use of the Cutter table of book numbers. Thus Miss Edwards' "Pharaohs, Fellahs, and Explorers" would be numbered B 101 E 95 p— the number being obtained as follows: HISTORY OF ART, ANTIQUITY = B. EGYPT = B 100; Popular Introductory works to Egyptology = B 101; Author and title = E 95 p— of the Cutter table.

Let us consider this classification not only as a plan designed for libraries but also, with some manifest limitation, as a projected plan for an art museum, with special reference to those features which an ideal museum may possibly cover, and also with special reference to those features which an ideal museum cannot possibly cover. By such a procedure we shall not only clarify our views as to the desirable projection of an ideal art museum, but we shall also rise to a conception of the vast importance of the knowledge to be obtained from libraries, as a background absolutely necessary to fill up the scheme of any good art museum. We shall learn, besides, as regards the projection of new museums, or the filling up of the deficiencies of old ones, to consider in what departments photographs or casts have mainly to be considered.

DIVISION BY PERIODS, AS OPPOSED TO A DIVISION BY SEPARATE ARTS

Passing by the inevitable first place for books of reference in the narrow sense, such as bibliographies and dictionaries, the latter being arranged in order of period and then in the natural order of the special arts, we reach next the natural and logical preliminary divisions of an art library; the divisions for general histories of art and for general histories of architecture, sculpture, painting and ornament.

It will be observed that there are no distinct general divisions beyond this point, as there are under the Dewey system, for architecture, sculpture, and painting. These subjects are not admitted at all as the basis of main divisions in classification, which is, on the contrary, outside of the far East, first arranged by periods and then by territories under these periods. Thus the special arts are grouped together, not only by the larger periods, but also by territories. That an ideal museum should be classified by periods and not by the divisions of architecture, sculpture, and painting is to my mind so obvious as to be hardly debatable. But it will not be so immediately obvious to a layman perhaps, until our libraries are classified on the same system.

Here again the special subject of library classification has vast importance for those points of view which ought to filter insensibly into the conscience of the general cultivated public and which ought not to be fought over and battled for by scholars and experts, when they are really elementary propositions, which ought not to be debatable.

In an ideal general museum, Egyptian architecture, sculpture and painting should go together, with all other Egyptian arts and relics. This

is plain common sense, and the same point holds for classic antiquity in general. Both periods should be separated throughout from mediæval, and all should be separate from Renaissance. The contrary arrangement is against common sense, whether in books or in museums. Neither ancient nor mediæval sculpture should be separated in study from the related and contemporary architecture. Neither can Italian painting, in its most important productions, be separated from architecture. As for the minor arts like those of ceramics, glass, ivories, etc., it is absurd to destroy the atmosphere which ought to envelop and inspire them, by ignoring periods and considering only the crude material of which they fortuitously consist.

But if this be true of art museums, it should hold true also of books, which are the background and scaffolding of all our knowledge of the subject. When our libraries are properly arranged we shall better understand what art museums are for. This is, at present, occasionally a debated question. But inasmuch as the proposition that a division by periods is preferable to division by separate arts, is not so immediately obvious for books, it will now be debated for books.

The objections to arranging books under the headings of architecture, sculpture and painting, instead of arranging these arts by periods, are really crushing, when considered by an expert. These objections move first from the constant and inevitable overlapping of topics in one book. Individual art objects naturally never overlap, but books inevitably do. If you have a bad classification for museum material, you are still able to stick to it. But if you have a bad classification for books, you cannot even stick to it. The bad classification for books is the one which allows them to overlap in categories, as they inevitably overlap in fact. Take for instance "excavations." These may include, and constantly do include architecture, sculpture, painting, ceramics, and every possible variety of objects. The recent excavations in Crete are a notable example; excavations in Egypt are another; excavations at Pompeii are another; excavations at Olympia are another. Now under the Dewey system these go under "antiquities and archæology of special countries," and this is a branch of "geography and travel." Hence they are removed by all the subdivisions for literature from their legitimate position under the general history of art. As a matter of fact they have no legitimate position. The arrangement is a makeshift, unworthy even of criticism. If I wish to study the plan of a temple at Naukratis, unearthed by Petrie, I go to "geography and travel." If I wish to study Petrie's book on the pyramids, I go on the other hand to "architecture," but I do not, in either

case, go to Egypt. What monumental obscurity! The instance of separating "Japanese Homes and their Surroundings," by Morse, from "Japanese Architecture and Allied Arts," by Cram, is duplicated whenever a work on excavations is catalogued by the Dewey system.

Take another instance of the difficulties of arranging works under the divisions of architecture, sculpture, and painting. Many of the most splendid folio plate publications on Mediæval architecture include sculpture, painting, stained glass, and furniture. Why should these books be separated from the photogravures of the Mediæval casts of sculpture in the Trocadero, which are architectural without exception, but which, notwithstanding, go under sculpture and not under architecture.

The absurdity of placing special works on Renaissance sculpture under the same category with Greek sculpture is another phase of this confusion. The student of Renaissance sculpture is naturally interested in Renaissance culture, Renaissance architecture, and Renaissance painting. The related books should be associated by periods, not by divisions which obscure the knowledge of periods. This arrangement is not only theoretically better but it is practically workable, as fast as one can distribute and handle the books and the catalogue cards.

For a general museum expert the proposition that Greek pottery should be classified, on general principles, with other forms of Greek art, rather than with Italian majolica and modern china, needs no special plea, and what holds of museums holds to an even greater degree where books are concerned.

It may be said, as an aside, that I should have as little objection to a modest synoptic museum collection of ceramics as I have to a book on modern ceramics which includes a mention of Greek pottery, but it is clear that no general book on modern ceramics can do justice to Greek vases and it is equally clear that, in a general museum, no important collection of Greek vases should be associated with an important collection of Italian majolica.

A few more words may now be devoted to the question whether museum and art libraries should be projected under the divisions for the main periods of art history, viz: under Ancient, Mediæval, Renaissance and Modern; although to my mind the subject is hardly debatable.

If this arrangement be desirable, it becomes evident that the museums of the future must give much attention to the subject of casts and photographs, and I will add that they must give much attention also to the subject of books and especially of folio plate publications. For instance, miscellaneous collections of the minor classes of Egyptian antiquities

may be obtainable for some time to come, but are not the great folio plate publications for Egypt an indispensable adjunct to every museum which can afford to buy them? There could be no greater boon to the general public than to frame up for public exhibition the folio color plates of Prisse d'Avennes. A public exhibition of large photographs of Egyptian pyramids, temples, and statues, appears to be desirable in every general museum, as well as the exhibition of the easily obtainable but not very numerous casts and squeezes of Egyptian material which can be had from Cairo and the British Museum.

Just as the library of an art museum or department should be rounded out, as far as possible, in a manner wholly independent of the museum's actual exhibits of original material, so an ideal general art museum should round out its possessions and fill up its necessary gaps by casts and by photographs. I can see no hope for the future student of art history unless this be done and I have very little respect for an art criticism which does not rest on historic foundations, and which is not inspired by historic principles.

We will pass now from the matter of the large divisions by general periods, to the questions connected with the arrangement by territories within those periods, and first of all to the question as to *what territories should be excluded* from an arrangement under periods.

CLASSIFICATION FOR INDIA, CHINA, AND JAPAN

In these days of evolution theories and evolution tendencies there can be no debate as to the point that the order of evolution must be considered in formulating a classification, either for an art museum or for an art library. Hence those territories or exhibits have first to be considered which do not adapt themselves to an evolutionary arrangement, for whatever reason it may be, and that reason will generally be our own ignorance, due to gaps in the record, which may be compared to the gaps and breaks in the record presented by the strata of geology.

In an art library and in an art museum the first problem of arrangement and of classification, is that which deals with the disposition to be made of the far East, viz: India, China, and Japan. These territories are outside of the sequence of European evolution and as to their own evolution we have in the case of India and of China no material and very little reliable record. Manifestly then, these territories must come either at the end or at the beginning of a library classification, in order not to

break the sequence which can be established for all other territories of Western Asia and of Europe.

Which shall it be for India, China, and Japan; end, or beginning? For a museum it might appear to be a matter of indifference; supposing that its galleries could be arranged in physical sequence, which is not always possible. For a library it is not at all a matter of indifference. The logical arrangement of territories in a definite sequence is as important as the logical arrangement of periods. The movement of civilization is always by contiguity and the movement has generally taken place in what may be called a sequence of contiguity.

What now are the facts regarding Hindoo art as known to us? The facts are, that India's art has always been bastard, and never has been independent. Neither has Indian art or architecture any high antiquity as known to us. 300 B.C. is about as high as we can go in dates. There are absolutely no very ancient temples in India, much as the contrary has been suggested. Buddhist art starts, as we know it, under Greek influence, dating from Alexander the Great's campaign and the states near the Hindoo borders founded by his generals. There was, of course, an earlier art, but such as there was appears to have been under Assyrian or Persian influence. Later Indian art is Mohammedan Saracenic, and Mohammedan Saracenic is, in origin, Byzantine.

Now it is absurd to study the art of a nation which has always been derivative, before we have studied the art from which it was derivative. Thus, as between the beginning or the end of a classification, India goes to the end, and certainly should not go at the beginning. If introduced at any intermediate point India breaks a sequence. China and Japan should come after India, not because much of their art is not independent of India, but because much of it *is* dependent on India, whereas the reverse does not hold. Of course, there can be no debate about putting Japan after China, in a question of evolutionary sequence. Thus the far East is disposed of. It comes last in our classification.

THE ARRANGEMENT OF TERRITORIES FOR THE ANCIENT PERIOD

In the Dewey system for fine arts history in general, China comes first; Egypt, second; Judea, third; India, fourth; Chaldea, Assyria, and Persia, fifth; Rome, sixth; Greece after Rome; and then the modern countries. There is absolutely no logic in such an arrangement, no logic in the knowledge which inspired it and no logical knowledge obtainable from it. In

explaining my own arrangements of territories, the defects of this Dewey arrangement will further appear.

The classification advocated does not call for a special division for pre-historics. The prehistoric art and bronze age art is called for by territories, wherever it appears in finds and has been treated by books. In very recent years a prehistoric period of great interest is known in Egypt. For Egypt the books on prehistoric finds come last, because these excavations are most recent. No one can study Egyptian art by beginning where science and archæology have ended. Otherwise, omitting the Tigris-Euphrates valley, Syria and Greece, where no bronze age art is known, up to date,¹ we next enter the topic under Italy, where our first real knowledge of this art begins and where the insensible transition from the bronze age to the later art can first be studied. The sequence from bronze age art to Greek influence is much earlier in Italy than in the territories of Europe farther north and west.

The point of view in avoiding a special division for prehistoric and bronze age art, and in treating it by territories, is that prehistoric art in Europe merges into bronze age art insensibly and without sharp demarcation. Now the earliest bronze age art which is known by large masses of material, that of Italy, shows east Mediterranean influence, and no north European bronze age art is known which does not show barbaric adaptations of Greek art, through Etruscan or other Italic mediation. Consequently I hold it to be illogical to study bronze age art before these influences have been considered. This is my explanation for not putting prehistorics before Egypt. As for entering prehistorics under special territories, outside of Egypt, before Italy comes on the stage, my objection is that a classification should never be theoretic.

As an instance of theoretic classification I have noticed in an expansion of the Dewey system for architecture which has been published by a Western University, a classification of Syrian territories in which there is an entry for the Philistines. It can only be said of such a classification that any library which possesses a book on Philistine architecture (in the territorial sense) should immediately make the fact known, and that any archæologist who can mention a single remnant of Philistine architecture will become instantly famous.

¹ We must distinguish here between the use of bronze which was well known in Greece and the so-called "bronze age" art. The Dipylon period of pottery undoubtedly represents such a period, but the finds of metal from this period, in Greece, are, so far, infinitesimal. Bronze finds are fairly numerous in Crete, but they do not show the "bronze age" art.

To return to Egypt, we have only one more point to make. Within the last few years dates are being established for the Tigris-Euphrates valley culture, which have an antiquity possibly as high as that accepted for Egypt and possibly higher. Is it not therefore a matter of indifference whether Chaldea precedes Egypt, or the contrary, or would not logic compel us to reverse the arrangement which places Egypt first, if higher dates were positively established for Chaldea? The answer to this question involves an explanation of the point of view from which the territories have been arranged under given periods, throughout this classification.

Under the general facts of history, and these are naturally the general facts for the history of art, we are dealing under the various terms of Chaldea, Assyria, and Persia with only one culture, and that is the culture of the Tigris-Euphrates valley. Different military ascendancies under different names, according to the province which assumed the leadership, are found at different times in the Tigris-Euphrates valley, but the culture sequence is uninterrupted, until ultimately the Egyptian influence spreads by way of Syria and overlays and saturates the Tigris-Euphrates culture. This overlay and saturation begin to be apparent in the Assyrian period, but are more especially evident in the Persian period, until the Greek influence takes its place.

Thus, in the sequence of art history and of culture, we should place first the Egyptian culture, because it ultimately overlaid the Assyrian. Otherwise we study Assyria with the disadvantage of not knowing Egypt; a disadvantage, because Assyrian art was largely bastard Egyptian through Phoenician transmission.

As Phoenicia was the connecting link geographically, and therefore historically, between Egypt and the Tigris-Euphrates valley, we need no argument for the location given to Phoenicia in our system. No position can be given it, excepting that of intermediary; for Phoenicia had absolutely no independent art. The intermediary must logically come after both the cultures which it joined and united.

Equally clear is it that the Ægean and early Mediterranean cultures of Cyprus, Crete, and Mycenae are here arrayed in their logical order. They connected Phoenicia with Greece and, as far as their own arrangement is concerned, the order represents their own sequence of relation, the sequence which naturally would hold geographically and which actually did hold historically; the sequence from East to West, which was also a sequence in time, as regards beginnings.

The absurdity of the Dewey arrangement in placing Rome before Greece is palpable—we have only to consider that the expansion of Roman power over Italy did not even begin until the time of the downfall of the Greek states, under Philip of Macedon, and that the later history of the culture of Italy, of Rome, and of the Empire of Rome, is the history of the diffusion of Greek art and influence over western Europe. Moreover the earlier history of Etruscan and other Italic art is the history of Greek influence. We do not know any Etruscan art, even the most archaic, which is not Greek in derivation, or, at least, in influence. To place Rome before Greece is to be absolutely out of the sequence of evolution. In an art museum it would be ridiculous to invert their relations. In a library it is not less so.

ARRANGEMENT OF TERRITORIES FOR THE MEDIAEVAL PERIOD

In the classification for the Mediæval period there are arrangements of territories which may not be immediately obvious to a layman as the logical arrangement, but which defend themselves as soon as they are briefly explained.

Historically speaking the Mediæval period represents the contact of the Germanic and Celtic races with Greco-Roman civilization, and their gradual assimilation of this civilization, with those remarkable differences of form and spirit, which partly their own independent racial traits, and partly their own originally ruder development, in the order of time, made necessary and inevitable.

That the background of Germanic and Celtic culture was that of a stone age culture, gradually modified by a bronze age culture which moved up from the south, is demonstrated by the history of art. Therefore the history of art should be so arranged as to illustrate this sequence, whether in books or in museums.

No excuse is therefore needed for beginning the classification for the Mediæval period with a preliminary section for prehistoric and bronze age art. The arrangement of individual territories is naturally that of their appearance in order of time in bronze age culture.

The bronze age culture of the Swiss lake dwellers has been until recently the earliest known in northern Europe. This would give Germany first place in the classification. Without debating questions of precedence in time, as compared with Spain, the best arrangement will place Spain first on account of her relations to the cultures of Mycenæ and Crete. If Germany is given second place in the

classification, the arrangement should then be, according to sequence of time, Gaul, Britain, Scandinavia, Russia.

Having thus established an independent Northern foundation for the Middle Ages, we turn back to the Byzantine and Saracenic cultures, which must be disposed of before the Middle Ages, in the narrower sense which applies to western Europe, can be considered. For Mediæval culture history is that of a gradual saturation by the ancient Mediterranean culture; partly by the local survivals of Roman culture in the West; partly by Byzantine East Roman influence, and in a less degree by Arab Saracenic influence, which was in origin also Byzantine, but which to some extent moved through Spain.

All Arabian and Saracenic art is an offshoot of the Byzantine Greco-Roman, and it first developed in the Byzantine territories of Syria, Egypt and North Africa, after the Arabs conquered them. In the library classification we therefore place first the general works on Byzantine art, and then those on Saracenic art.

In the arrangement of territories we observe the sequence: Persia, Syria, Asia Minor, Constantinople, Egypt, North Africa, and Spain, as being much the most convenient and logical.

We are now able to take up the direct sequence of Mediæval art as it began in the catacombs and in early Christian Rome and Italy.

IVORIES AND MINIATURES

The ivories follow immediately, because they are the most important connecting link between Pagan and Christian art. The reasons are obvious. In the late decadence of Pagan-Roman art, ivory carving was the art most practiced and the best design survived there. Therefore, in the beginning of Christian art, ivory carving shows the best design. Next, the ivory carvings, being portable, were most easily concealed from the cupidity of barbarian ravages. Moreover, their material was not tempting to these ravages. They could not be melted up like metals. Thus the ivories were not only the best art but they were also the most easily preserved. For this reason, as far as survivals go, they are the main surviving connecting link between Pagan and Christian art.

Next in order we place the miniatures, both of Byzantine and of early Irish art, since, west of Byzantium, Ireland was the only territory not overflowed by the German invasions, and therefore was the main refuge of West Roman culture in the 5th, 6th, and 7th centuries. Ire-

land was spared from barbarian degradation until the 10th century and the inroads of the Northmen.

The later arrangement of the Mediæval classification need hardly detain us, but the arrangement of territories for the history of architecture is not that of the Dewey system. In the order of time Italy is first, Germany second, France third; then come, side by side, Spain and Great Britain. Therefore we also place them in this order territorially.

PAINTING

The reasons for placing the general histories of painting at the close of the Mediæval period or at the beginning of the Renaissance, are obvious. All histories of painting unite the two periods. If placed last under the Middle Ages or first under the Renaissance, we are not obliged to duplicate mention or references.

The later subdivisions for the Renaissance and modern period need hardly detain us, as long as large and general points of view are controlling.

COINS

It will be observed that Coins have a major heading and a department of their own. They form an exception to the usual standpoint of my classification. The reasons are easily given, but space is lacking here. An exception is made, however, for Greece and Rome which will involve cross references and duplicate carding.

GENERAL CONSIDERATIONS

We are now able to return to some general considerations. Is this scheme too ambitious? For a library classification, it certainly is not. Anything less comprehensive would be open to instant and incessant criticism.

Is this scheme too ambitious for a museum? In principle, certainly not. In practice, no museum, of course, can even attempt to cover the whole architectural field in casts. Only one museum in the world—the Trocadéro in Paris—has attempted this in a large sense, even for Mediæval architecture. But should not a museum, for that very reason, pay the more attention to photographs and to monumental plate publications? In the best sense, the art museum should be a supplement to a library as far as the history of art is concerned.

My idea is: Set the pace in your ideal of a library, and then inquire what are the absolutely unavoidable shortcomings in any museum, which only a library can fill. Next, inquire what can be done with casts and photographs to fill in the gaps which, in practice, even the best equipped museum will inevitably show. However far the actual thing may be from the ideal, the best practicable thing can only be reached by having an ideal in view.

What is needed in art museums is the historic point of view for historic objects and the disposition to balance up unavoidable deficiencies by photographs and casts. That balanced and comprehensive selection is more important than massive exhibitions in special fields, is widely admitted for museum exhibits of originals, and the observation of this same rule for photographs and casts will carry us a long way on the road to popular synoptic art museums.

That a good art library bibliography, well classified, should be a valuable assistance to a museum expert, few will deny. We will admit that many good museums cannot possibly own and ought not to own twelve thousand dollars' worth of books. But no one is confined to a single library, and if the bibliography once exists, the knowledge and consultation of books are furthered. The knowledge of their existence and of their correlation ought to be widespread.

A specially close relation between libraries and museums holds for the field of history. The value of art museums as institutions for the suggestion of the broad facts of general history cannot be overestimated.

ART HISTORY AND ART MUSEUMS

Even considered in the narrowest point of view, that of "art for art's sake," the true theory of cultivating the art sense is to place the student in contact with good examples, and with the best. These are, in the majority of cases, historic examples. Even in painting, where some modern artists occasionally, or possibly, rival some of the older ones in individual cases, the historic models offer the best standards. If we desert them we find ourselves disturbed by our own individual tastes, by the contentions of modern critics and by the contemptuous attitude of one modern artist, or of one modern school, toward another, when both may ultimately prove to be meritorious. It is not denying the greatness of modern literature to hold that the historic standard authors offer the best examples for educational training. The same point holds in a much more eminent degree for art.

Thus the problem of the museum of historic art is to select its examples in a properly balanced distribution, whether casts, photographs, or originals, and to arrange them in historic sequence and relation. The problem of the art library is not only a related problem; its solution may even be an assistance to the art museum.

The mission of the museums of the future is not to supplant or to excel, in the matter of original possession, those already formed. Such ambition is, in many directions and in many cases, puerile and unattainable.

What the public needs to know first and foremost is, what the best things are and where they are. It is as much the business of the art museums of the future to assist the public to this knowledge, as it is to collect originals of their own. But also in collecting such originals, the relations of these to other originals must be made known and the unity of these relations should be apparent. Otherwise the focus is lost and the perspective disappears.

DISTINCTION BETWEEN MODERN ART GALLERIES AND HISTORIC ART MUSEUMS

In considering the problems which confront our museums of art in America, our theorists sometimes overlook a very practical consideration. This consideration is mentioned in closing, without special reference to my own paper, unless it should occur to someone that this paper appears to neglect modern art and that it is in so far defective.

There are no important museums of historic art in Europe which include in their exhibits modern contemporary art by living artists. There are no important museums of historic art in the United States which do not include contemporary modern art by living artists. Let us consider, for a moment, the result of this difference. This result is, in my opinion, a confusion of theories and views, caused, in America, by discussing two kinds of museums or galleries which are really quite different, but which in America almost invariably exist together under one roof. There is not the slightest objection to this combination in the United States. It is certainly inevitable and it is very likely desirable. What I do object to, is the confusion of ideas which results in discussing the mission of an art museum and the point of view to be taken about it.

The point of view must be different in the case of a gallery of modern art from the point of view in a museum of historic art. If we combine the two things in one building let us not forget that a different point of view must still be taken for the two different capacities of the same mu-

seum. The point of view for the gallery of modern art must be the point of view of the modern artist, and no doubt there may be different points of view and many debatable questions, within the limits of the general point of view of the modern artist. The point of view for the museum of historic art (and this holds, even if it be combined with the modern gallery) must be the point of view of the art historian.

The good art historian is necessarily a good critic, and he must consequently be a good judge of modern things, but his attitude toward historic art must be to consider its environment and to consider its evolution, and first and foremost to consider the work of historic art from the standpoint of the time and race and period which produced it.

Many theories and much debate about historic art will drop out of sight if we ask the simple question, What was the idea of the thing in the mind of the man who made it and what did he make it for? The work of historic art is a document and a record of history. As such it should be considered and as such it should be treated. The greatest modern critics have been developed as students of historic art. Therefore we need not fear that the accent which has been placed in this paper on historic art, as distinct from modern art, may suggest or indicate an indifference to the latter.

Mrs. Cornelius Stevenson, of the Pennsylvania Museum and School of Industrial Art, Philadelphia, then read the following paper:

THE TRAINING OF CURATORS

It may be remembered that last spring, the Pennsylvania Museum and School of Industrial Art, with which I have the honor of being connected, sent out circulars announcing a course for curators. It has occurred to me that, as this was an experiment in our school, and as far as I know, it was the first course offered in the country by any school, you might be interested in discussing its aims and in following its vicissitudes.

The thought that prompted the offering of the course was born of the increasing multiplicity of museums, and our personal difficulty in obtaining satisfactory assistance. Although as yet, no millionaire has offered to do for museums what Mr. Carnegie has done for libraries, it would seem as though the enlargement of existing museums, and the increase in the number of such institutions, must create a demand sufficient to make the training of educated men and women for such work worth while. If the

multiplicity of libraries caused the establishment of the new profession of librarians, is it not likely that the care of art and other collections which every year are increasing in money value, and are becoming more and more difficult to obtain, will make it advisable for a number of young men and women to fit themselves for professional work on these lines. One fact at least seemed to point to this conclusion, namely, the establishment of this American Association of Museums, the discussions of which are likely to create definite standards of museum work: standards of building, lighting, heating, installing, equipment; standards also of museum economics and administration. I believe that the time is coming when museum science will have definite standards with regard to the various branches of the work, just as any other branch of learning. In annually directing the attention of the members of this association to museum economics, museum æsthetics, and even to museum ethics, the principles of museum science must in time become more or less fixed, or at least so formulated as to form a firm basis whereon the museum curator may rest his conduct and general standards. Thus a point may be reached where in time the work of training may proceed along definite lines generally recognized and accepted as the best, with the result of minimizing the waste of time and money which now occurs in experiment, each repeating the mistakes of others.

Meantime, a tentative course was opened on October 15, 1908, with 11 registered applicants. The requirements were a high school education, and a \$10 fee for outside students. To the students of the School, it was offered as a course of the Art Department. The first lectures of the course, as stated in the syllabus appended to the circular, dealt with the historical aspect of the subject, and therefore were of general interest. They drew an audience, outside of the registered students, to a maximum of thirty. When the more special lectures were reached, however, the registered attendance alone continued. These students showed such earnest interest, that after consultation with the authorities, the course was extended to cover another semester.

The class was now taken to the various museums in the city, and much profitable observing was done under the guidance of the curators in charge, who most kindly explained to the class the special features of their respective institutions. After each of these visits, a critical survey of what seemed excellent was made and balanced against what seemed faulty in the museum. In this manner, it was possible to gauge the degree of understanding reached by each member of the class. Moreover, it was found that this method tended to develop in the students the critical faculty besides keeping their attention 'keyed up' and alert.

In this ambulatory part of the course, the best obtainable results were secured by making appointments with the directors of the respective museums visited, who kindly went with us and placed at our disposal every facility for investigation, explaining administrative methods, reasons for the selection of any special equipment, and who gave us the result of various experiments in installation and in administrative details. I am glad to have this opportunity to thank our colleagues for the inestimable service which they rendered us. From every visit we carried away some important idea. I believe that you visited to-day the Wistar Museum of Anatomy, and, no doubt, you will appreciate what a full explanation of the practical administrative methods arrived at by Dr. Greenman, in the simplification of clerical labor in running his office, for instance, must mean to the student, when engaged in forming unto himself an ideal of what economical administration could be brought down to with proper care and study. While a visit to other museums might suggest to him what such an institution could be made to be, if started, *de novo*, by a student of the science, untrammled by tradition, by uneducated boards and inexperienced committees, or by financial restrictions, and above all by the æsthetic architect, who cheerfully sacrifices to the beauty of the façade the most important availability of the museum building and its assigned purpose.

It is relatively easy with the expenditure of large amounts to produce an effective display that will impress the visitor. But such a display may not always be the most educational nor the most scientific method of exhibiting specimens, and often the result obtained does not warrant the space assigned to it nor the outlay incurred. Outside of New York, Chicago, and possibly Boston, money is usually difficult to raise for museum work, and it is necessary to the progress of museum science that the subject of museum economics shall be brought to bear upon administrative methods.

The idea then, in giving the course, was to endeavor to take from our collective experience to date, the most satisfactory achievement in every branch of the work, and thus to try and get at an ideal museum standard, toward which one may point as the aim of museum effort: the aim being to obtain the highest degree of efficiency at the minimum cost.

In my preliminary effort to gather the material upon which to base the attempt, I made use of the transactions of this association, as well as of the reports from various institutions, and especially of Dr. Meyer's critical survey of the museums of this country. I also entered into correspondence with Dr. Meyer, and am indebted to him for many valuable personal suggestions and much encouragement. To Dr. Rathbun

of the Smithsonian Institution, I also owe thanks for his helpful interest, and a personal explanation of his plans for the handsome new building now being completed at Washington. Of course I made good use of the voluminous writings of our Nestor, the late Dr. G. Browne Goode, and of much important information personally collected by me from him and others at the time when I was studying museum buildings in this country and abroad, as well as museum management, with a view to the erection and establishment of the Free Museum of Science and Art in this city, of which I was then Secretary and afterwards President.

After visiting every museum in Philadelphia, and studying what we had learned from each, the class came out to the Pennsylvania Museum at Memorial Hall, and did some practical work, applying some of the knowledge acquired. At this stage of the experiment, the season being well advanced, for one reason or another the class was reduced to six. I have been told, however, that such a result of putting students to practical work is not uncommon, and that the same phenomenon occurs in other classes of the School. As against this, those who remained would have continued as long as permitted. The technical lecture on museum chemistry, to deliver which I was fortunate enough to secure the generous service of Mr. George Brinton Phillips—a chemist who is interested in certain aspects of archæology and who was kind enough to give a demonstration of the action of certain chemicals and of the proper tests for the presence of chlorides and other deleterious substances present in ancient pottery, stone, and metals long buried in the soil—was attended by a number of extra persons. This, by the way, was a most valuable as well as most interesting lecture.

It is my belief that of the 11 students who originally registered, only five had any idea of applying the knowledge they might acquire to actual museum work. The most earnest and promising member of the class hopes to become a teacher of industrial art, and took the course especially with a view to broadening his outlook by going back to original sources in art work.

A second course is planned for next year, which will include the study of ornament with reference to the identification of objects, dealing with what is common to all races, and what is distinctive, bringing out the peculiar characteristics of each locality, the treatment of certain forms by certain ethnic groups, which will enable the student to recognize the original province of an object by its decoration, and dealing with certain periods and their peculiarities.

In conclusion, it seems to me that, just as libraries have a standard and

a system of administration which is crystallized in a well-defined plan for the training of assistants, leading to a recognized profession, the time has come when the go-as-you-please method of museum building and museum administration must settle down to something less vague, less whimsical, and more definite. Already, owing to this association, the museum situation is less chaotic than it was, and gradually a tendency to uniformity is observable to old museum workers who know somewhat of the earlier days. The time is not far off when a standard of museum excellence—passed upon after mature discussion by such a body as this, made up of persons of experience—will be attained, and when the great museums of this country, having settled on this standard, will undertake the training of assistants along a recognized line of theoretical and practical efficiency, that will open up hopes of promotion as a reward for efficient service; all of which must tend toward the economic advantage and scientific advancement of the work, and toward the higher dignity and material interest of the profession.

When, this afternoon, it was suggested that certain subjects be selected for "round table" discussions at the next meeting of this association, it occurred to me that the subject most in need of discussion just now, is the possibility of arriving at a standard of museum administration, a definite system of museum economics and standards for each branch of museum equipment and installation; and that I should propose to you this evening the systematic discussion of the subject in its various branches and aspects, with the object in view of establishing a basis for the training of curators and of opening a career to men and women of liberal education.

At the conclusion of Mrs. Stevenson's paper it was voted upon motion by Dr. W. P. Wilson that a round table discussion on the "Training of Museum Curators" be arranged for the next meeting of the Association.

The remainder of the session was devoted to the demonstration of lantern slides prepared by Dr. Carlos E. Cummings, of the Buffalo Society of Natural Sciences, for use in educational work with the public schools.

The meeting then adjourned.

SESSION OF THURSDAY, MAY 13

Morning

The Association met at the Academy of Natural Sciences, President Holland presiding. In the absence of the president of the Academy, Dr. Arthur Erwin Brown welcomed the Association and briefly compared the work of the Academy with that of other museums. The following paper was then read by Prof. William C. Mills, of the Ohio State Archæological and Historical Society, Columbus, Ohio:

THE ARCHÆOLOGICAL ATLAS OF OHIO

I take pleasure in reporting upon the progress of the Archæological Atlas of the State of Ohio, which has been under headway for about six months. At the present time we feel encouraged in the preliminary work and hope to have the Atlas completed in the time specified, namely, three years.

However, many difficulties have arisen, such as the size of the county map. Many counties contain numerous remains while others only a few and the maps had, therefore, to be adjusted so as to contain all of the remains such as mounds, earthworks, and village sites. To secure the proper data concerning the mounds and to properly place the same upon the field map constituted another problem. The Society has selected the maps of the topographical survey of the state and, in many instances, portions of the county only have been finished, and this is a great hindrance.

The size of the Atlas will be 14 x 17 inches. It will contain eighty-eight maps representing the eighty-eight counties in the state. As an introduction, two maps of the entire state will be given, one showing the location of Indian tribes and villages before Ohio became a state and the other showing the Indian trails, old forts, and battle grounds.

A concise archæological history of the county, together with a summary of its prehistoric remains and the explorations therein, will constitute the introduction for each county map.

The curator has been directed to visit each county in the state for the purpose of securing the necessary data and at the same time to place upon the field map the location of mounds, earthworks, village sites, work shops, ancient quarries, rock shelters, gravel burials, etc., that may be found in the county. The map for the Atlas will be made from the completed field map on a scale of one-half inch to the mile.

President Holland.—"Have you any idea that the location of this prehistoric semi-civilization was co-incident with the ice age or antedated it? Is it a fact that the glacial area seems to be completely free from these remains?"

Professor Mills.—"We find paleolithic remains in a number of places in the state as you know, but we find also that the prehistoric remains come after the glacial period, occupying the territory deposited by the glacier and utilizing it for their agricultural purposes. I do find these two—and only these two—great cultures extending over the state. There may be a third. The two great cultures are quite separate and distinct. We find they all smoked pipes and the very moment you see one of those pipes you can tell whether it belongs to the Hopewell or Fort Ancient. Take the needle made from the metatarsus of the wild turkey; in the Hopewell culture they made two needles out of it, in the Fort Ancient culture one needle. The pottery is the same way."

Dr. Oliver C. Farrington (Field Museum of Natural History, Chicago, Ill.).—"I would ask Professor Mills if the connection of the culture with the terminal moraine does not argue the existence of man subsequent to the ice age. The connection of man with the terminal moraine arose from the large quantity of physical materials for his cultures that he could find in the drift brought by the ice. These would be available only after the retreat of the glacier."

Professor Mills.—"There is no question that in the gravels near the terminal moraine we find the remains of both these cultures coming in evidently after it. There is no doubt that this glaciated region furnished both the territory and the material for agricultural work."

Mr. Frank C. Baker (Chicago Academy of Sciences).—"Has there been any attempt to find whether the aborigines followed closely the retreat of the ice? I find that many mammals and molluscs followed the retreating ice very closely, not only during the last glacial period, but also during the others. Are there any records as to whether the aborigines also did this?"

Professor Mills.—"I have not found any."

President Holland.—"The next paper will be presented by our friend Mr. Witmer Stone, curator in the Academy of Natural Sciences, Philadelphia, and one of our hosts of the forenoon."

PROBLEMS OF MODERNIZING AN OLD MUSEUM

The few remarks that I have to make this morning do not perhaps accord very well with the title as originally handed to our secretary and must be taken rather as an historical contribution than as outlining a policy for others to follow.

Few persons entering upon museum work to-day, in a comparatively modern or a new institution, can form any idea of the problems that confront one in caring for collections that have nearly or quite a hundred years of history back of them; especially when, in that time, they have grown to be among the largest collections of their kind in America, while their arrangement follows the ideas of the early days of their history.

This institution was founded in 1812 when Peale's Museum was at the height of its fame, and when a public museum consisted entirely of show cases. On such lines the Academy Museum was established and on similar lines its development took place.

Taking the collection of birds as an example of its growth, we find that, largely through the munificence of Dr. Thomas B. Wilson, a former president of the Academy, it had grown from a very modest beginning to be, in 1858, in the opinion of no less an authority than Philip Luther Sclater, the finest collection of birds in the world.

When I became acquainted with the collection in 1888, it had had no attention from an ornithologist since the death of John Cassin twenty years before and was practically in the condition in which he left it.

There were 25,000 specimens, all mounted, for, according to the ideas of the middle of the 19th century, every specimen was supposed to be on exhibition. The ornithologist, who to-day can sit comfortably at his desk with thousands of bird skins in cabinet drawers within arm's reach, can realize the difficulties that attended John Cassin's researches when tray after tray of mounted specimens had to be carried from the museum to the library and there stood upon tables gathering dust until their investigation was completed. Our librarian, Dr. Nolan, tells me of a large metal oven in the basement in which infected specimens were placed in the old days and baked until the insect pests and their eggs—and occasionally the specimens themselves—were destroyed. Data were written on the bottom of the stands, occasionally with the addition of personal or historical comment. One stand, for instance, bore the inscription, "Labelled by John Cassin this 29th of Nov. 1848, $\frac{1}{2}$ before 8 o'clock in the evening—Wednesday;" another, "Just heard of the downfall of the French Empire, Vive la Republique." I found also the handwriting of

Townsend, Audubon, Baird, and Peale—names that cannot but recall the early history of ornithology in America. Exhibition labels were borne by many specimens, some of those prepared about 1850 having colored borders representing the continent from which the specimen came and conforming so far as possible to the color of the natives. North American specimens had red-bordered labels, African, black, and Asiatic, yellow. Here, however, this resemblance ceased, as the Australian specimens bore green-bordered labels.

The amount of crowding that was necessary to get the 25,000 specimens into the exhibition cases can readily be imagined and I need not tell you that not half of the specimens could be seen. There were no less than 1500 hawks and eagles, for instance, among which were 30 specimens of the sparrow hawk, 38 duck hawks, and 18 golden eagles. The visitor wandered aimlessly about in this maze of birds and the ornithologist had difficulty in examining such specimens as he wished to study, yet this was the prevalent idea of a museum exhibit fifty years ago. The late Dr. Joseph Leidy used frequently to refer to the bird collection as a sort of white elephant and doubted if the Academy would ever have the space to properly exhibit it. At the present time this collection has been cared for in rather less exhibition space than it formerly occupied, but two-thirds of it has been unmounted and placed in moth proof cases, where it is easily accessible to specialists. With the elimination of duplicates and other specimens unnecessary for display, the visitor views the collection with far more intelligence and profit than was possible before.

The prospect of reducing that collection of 25,000 specimens to the proper size and of transforming the majority of specimens into study skins, not to speak of the task of procuring tight cases for their accommodation, and the cataloguing and labelling incident to the work—all at a time when funds for the purpose were not available—was, to say the least, appalling, and was not accomplished in a single year. Furthermore, every specimen had to be cared for, no matter how damaged or unsightly it might appear. The entire history of the collection had to be worked up and all possible types or historical specimens hunted out, for in the old days authors did not clearly mark their type specimens, and not until this had been done was it possible to discard any apparently useless duplicates. Finally, the data on the wooden stands had to be carefully transcribed to the labels and the catalogue pages and, in the case of types, the bases of the stands themselves were preserved and numbered. As a result of this work over 600 bird types have been identified and

properly cared for in special metal cases, while the study collection, starting with about 15,000 unmounted specimens has grown, with additions of modern material, to a collection of some 45,000 specimens. The handling of these additional 30,000 modern specimens, with modern cases available for their reception, was but an incident compared with the renovation of the original mounted collection.

Up to about 1890, our Academy museum like most other old institutions, contained only exhibition collections and every specimen obtained was exhibited. I have mentioned the ornithological collection simply as an example and one with which I was especially familiar. There were only two exceptions, namely, the departments of Entomology and Botany, in one of which exposure of specimens to light had long been admitted to be fatal and consequently exhibition was out of the question, while in the other, exhibition had never been feasible. No quarters for study collections were provided, therefore, in the plans for the present Academy building which were drawn in 1876. In fact there was no thought of the possibility of such quarters being needed. Furthermore, with all the specimens installed under glass there was need for but one curator, who could do such labelling as was necessary and keep an eye upon the perishable specimens. The idea of a salaried staff doing original work was as remote as the idea of study collections upon which their work must be based. Such work was done in those days by the amateur or by volunteer members of the Academy and the curator's office was, so to speak simply to open the cases for them.

Our work of modernizing such conditions has included, among other departments, the collection of mollusks which, were the cases and glass covered drawers on public exhibition to be placed side by side, would have covered over 5000 square feet of space. A conchologist identifying specimens could easily have traveled a mile in the course of a morning and visitors tired of the display before examining a dozen cases. This collection has been largely condensed by the use of storage cases, though fortunately no radical alteration in the condition of the specimens themselves was here necessary.

In the department of mammals, the original collection has been almost entirely reduced to study specimens or discarded, as the 'stuffed' mammal of fifty years ago proved simply impossible when compared with the 'mounts' of today.

The jars of reptiles and fishes formerly arrayed in row upon row of wall cases, the alcohol usually so discolored that no idea of the specimen could be obtained, have been entirely withdrawn from exhibition and are soon

to be installed in a fireproof alcoholic room where they will be of easy access to the specialist. Plaster casts take their place in the public museum. Here, as in the case of the birds, an enormous amount of labelling was required and, in addition, 18,000 reptiles and amphibians have been tagged with pure tin tags stamped with the catalogue number to avoid any possible mixing when specimens from different jars are compared.

And now a word as to the cases used for study collections. Our Academy was not in a position to ignore the question of expense when installing cases, as some more fortunate institutions are apparently able to do. We had to use the cheapest cases that would answer the purpose, and, in all departments where perishable specimens were concerned, the Cambridge cans have been found most satisfactory. Modifications have been made, especially in those designed by Dr. Henry Skinner for the storage of insects. Cast iron rims have been substituted for the original hollow tin rims. These make the doors absolutely rigid and do away with the necessity of clamps on the top and bottom. These insect cases are fitted with wooden racks upon which the Schmitt insect boxes slide. Similar cases are being installed in the herbarium. The great advantage of these comparatively small unit cases is that an additional unit can be interpolated at any point where the collection is congested without the shifting of all the drawers and boxes. Tight modern cases with grooved panel doors and ice-chest clamps have proved very satisfactory even for the storage of large bird and mammal skins. These can be covered with metal if desired.

A new alcoholic room is now being fitted up, which is absolutely fire proof in itself and is shut off from all other departments. Metal covered cases with panel doors are being erected here and are fitted with sliding trays measuring 18 × 12 inches, with sides high enough to prevent the jars from toppling over. Each tray will carry generic or specific labels on the front and can easily be lifted out to a convenient table. When arranged on shelves, jars have to be placed in a single row or there will be constant breakage in reaching for jars in back rows and the single row involves great waste of space. The tray plan obviates this disadvantage while the tight cases protect the specimens from light and prevent the jars from gathering dust, which proves so much of a nuisance in the handling of alcoholic specimens.

In comparing the old Academy with that of to-day one is struck with the significance of certain other changes that have gradually taken place. I can remember the care with which a prospective herbarium specimen

was compared with those already mounted for fear of installing a duplicate. Nowadays duplicates are not only admitted but series of specimens are a desideratum, for as time has passed the species is no longer a cast iron unit but a 'morph' or a 'mutant' or other indefinite concept that changes its limitations with every author and cannot possibly be adequately represented by a single specimen. So, also, in entomological collections we formerly found on the pin below the insect only a minute locality label, while now we find several labels setting forth the exact locality, date, and collector, as well as the altitude and character of the country or vegetation where the specimen was taken. All this information is required by modern investigations along geographical or ecological lines which to-day have become of equal importance with the mere naming of the specimen.

The contrasts that I have drawn between the old and new museum are presented simply to emphasize the importance and the extent of the work that has had to be done in the older museums of the country, before much attention could be given to modern exhibits for popular instruction. This work in spite of its importance cannot be noticed nor appreciated by the general public.

There is little that is new in the plans that I have described, but I have attempted to emphasize: (1) the enormous burden imposed by vast historic collections upon an institution with a moderate income; (2) the responsibility to science that rests upon such an institution, until these collections are safeguarded and arranged in accordance with modern ideas; (3) the impossibility of such institutions competing with new museums in educational displays until this work has been accomplished. We have so many new, well-endowed museums springing up which are able to formulate their plans in advance and guide their development in accordance with them, that we are sometimes inclined to look upon the older institutions, which have made possible America's scientific development, as slow or behind the times, and fail to realize the work that they have to accomplish before they are in a position to start on an equality with newer institutions.

So, too, we are inclined to overlook the historic evolution of the modernized museum, and the societies that in most instances gave them birth. Yet it is interesting to picture the little club of scientific men—like that which founded this Academy—meeting for informal discussion one evening of each week, and contributing to the nucleus of a collection which they could all handle and study. Next came the erection of a special building for the meeting and for the housing of the collections, and then

a larger one; one member perhaps being appointed as curator. The privilege of members to make use of the collections as they wished, and also the club feature was retained in the informal gatherings and smokers after the regular meetings. Finally came the gradual development of the great public museum with salaried specialists in charge of the various departments, and the differentiation of material and specimens into public educational exhibits and study collections for special research work.

The changes have been truly remarkable and one cannot but wonder what the next fifty or one hundred years will bring forth. The preservation of material for study is a policy that can hardly change, but the future of our exhibition collections and the evolution of our present methods and ideas as to installation, cases, labels, etc., can scarcely be foretold.

President Holland.—"The paper is before you for discussion and comment."

Dr. Henry Skinner (Academy of Natural Sciences, Phila.).—"I think this case is probably the best that has ever been devised, considering its cost. I have discarded the wooden case. I think the wooden case is unsatisfactory from almost every standpoint. Wood will warp, attract dust and sometimes moisture. The advantage of this case is that it is absolutely pest-proof. If, through carelessness, a case like this should become infested, it is an easy matter to introduce volatile poisons. Moreover, it constitutes practically a card catalogue system. It is a simple matter to introduce an additional box. I think at the present time we are in a position to preserve insects indefinitely, for museum display or for study purposes, almost as easily as we do minerals. The case costs, without the boxes, approximately \$11."

President Holland.—"The Chair will take the liberty of saying that this case is evidently an adaptation for entomological purposes of cases which are and have been for a number of years in use in Washington and other museums for the storage of birds. They have an arrangement by which the front door can be closed tightly. We have a series of cases larger than these, with drawers for storage of birds, some of the drawers being six feet long and three or four feet deep. We find it a most excellent system for, by putting on the door and clamping it, you hermetically seal the contents. Then too, I believe the method is highly practical. We have been much interested in these remarks of Mr. Stone."

Dr. Skinner.—"I might mention that the Academy has in use 250 cases such as the one described for the birds and insects."

Mr. Frank C. Baker (Chicago Academy of Sciences).—"It is pertinent for me to say one or two words, for, of the visitors present, it is possible I appreciate what Mr. Stone has said more than any one else. Some twenty years ago it was my privilege to be a Jessup student in this institution, and I remember particularly the 25,000 or more bird skins that Mr. Stone spoke of, and of wandering in the gallery above us. I would like at this time also to acknowledge my indebtedness to this institution for I realize that some of the training I received here has made my present position possible. I hope there will be a reunion of the Jessup students. I think the hundredth anniversary would be a proper time, and I would suggest to Dr. Nolan that he send a notice to all Jessup students, whose address is known, and invite them to meet at that time for a reunion. There are quite a number living and it would be a pleasant thing for us to form here a Jessup student society."

President Holland.—"We will proceed to the next paper, which is by Mr. Frank Collins Baker, curator of the Chicago Academy of Sciences."

EXHIBITION CASES WITHOUT SHELVES

It has been the ambition and earnest desire of nearly all museum men that a practical system might be devised, by which certain exhibits, such as birds, fishes, and other vertebrates, might be prepared without the use of shelving, which invariably detracts from the appearance of the object exhibited. A number of schemes have been formulated and put into practice, with greater or less success. The difficulty with the majority of these schemes is, that the objects thus exhibited are fixed and can not be moved to another part of the case or interchanged in any way.

About three years ago, the writer began experimenting on the local bird collection in the Chicago Academy of Sciences and, in conjunction with Mr. F. M. Woodruff, installed one case without using shelving of any kind. The birds were mounted on natural branches which were fastened directly to the case by means of sharpened steel pins fastened in the end of the branch and forced into the back of the case. This method has proven quite satisfactory and presents a pleasing appearance.

The installation of this case was comparatively easy, owing to the fact that it contained a local collection, the limits of which could be very

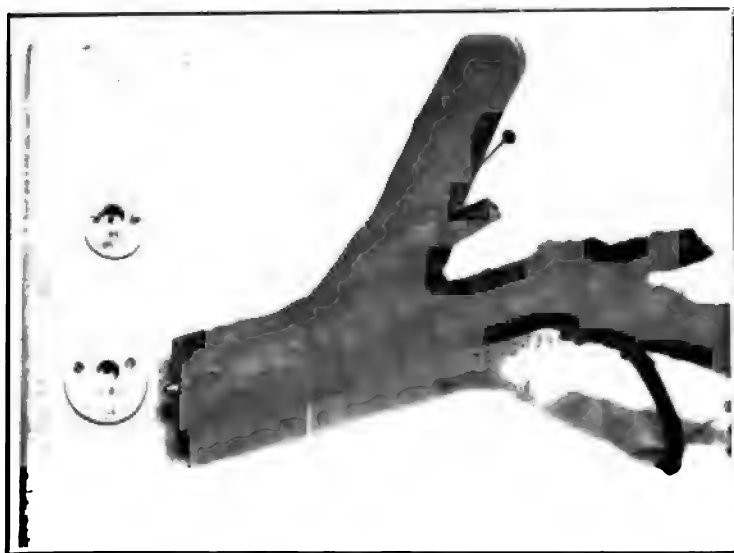


FIGURE 1 BRACKET DESCRIBED IN MR. BAKER'S PAPER



FIGURE 2 THREE GROUPS MOUNTED WITH BRACKETS LIKE THAT IN FIGURE 1

accurately determined. With a general collection, however, the case is quite different, it being well nigh impossible to predict what the limit will be, and for such a collection the system must be flexible enough to admit of changing and rearranging the specimens as may be desired.

After considerable experimentation, a method has been devised which seems to answer all the requirements, at least, for the exhibition of birds. This method may be thus described:

A brass plate with a key-hole-like perforation is fastened to the back of the case. The perforation is made large enough at the upper part to admit of the passage of the head of a screw, the neck of which drops into the narrow part of the perforation. A hole one-fourth of an inch in depth and of the diameter of the perforation is bored in the back of the case behind the perforation. A screw with a rounded head just small enough to pass through the large part of the perforation is securely fastened to the butt end of the branch upon which the birds are mounted. This screw is inserted in the branch just far enough to allow the butt end of the branch to fit snugly against the plate when forced into the narrow part of the perforation. When the branch is in place the plate is entirely hidden and the branch appears to proceed directly from the back of the case. As the interior of the case is painted a uniform blue-gray color, the plate is inconspicuous even when not covered by a specimen. By this method, the back of the case may have a number of unused plates in position which will scarcely be noticed, and which will be in readiness for additional specimens or for any rearrangement which may be made.

So successful have been the experiments with this system, that plans are now made for installing four double cases of birds in the manner indicated above. These cases are to contain only the birds of north-eastern Illinois, and will be divided into two series. The first series will be taxonomic, with family, species, and food labels; the second series will be ecological and will illustrate the nesting habits of local birds. The arrangement of this collection will be by the nesting habitat; as birds that build on the ground, in holes in trees, in low bushes, etc. It is believed that the greatest teaching value may be obtained from a collection arranged in this manner.

It was thought at first that the round screw in the branch would be liable to turn in the socket and tip the exhibit sideways, but such has not been the case in practice, the branch binding enough to secure a firm fastening.

The figures illustrate this method of installation: Figure 1, two plates fastened to back of case; branch with screw (s) in butt, ready to be placed

in position; figure 2, case installed by the new method, showing branch-nesting bird exhibit attached to back of case.

NOTE—After using this method of installation for six months it has been found that better results are produced by reversing the method, *i. e.*, attaching the brass plate to the butt end of the branch and fastening the screw to the back of the case. In heavy groups which are somewhat top-heavy, it has been found necessary to use a screw with a flat shank, to prevent turning when in position. With these changes, this method of installation has proved eminently successful, not only for groups, but for panels containing heads, feet, etc., which may be suspended directly from the back of the case.

President Holland.—"Are there any remarks upon the paper? There is an opportunity for questions or discussion."

Prof. E. S. Morse (Peabody Museum, Salem, Mass.).—"I use a similar case. We have in our museum at Salem a tablet that can stand vertically or inclined and I adjust a little shelf with these same catches. We display everything now on a square tablet and the pane of glass corresponds with the size of the tablet. One can take it out to study it or compare it with others."

President Holland.—"We will pass to the next paper, which is offered by Dr. Oliver C. Farrington, curator of geology in the Field Museum of Natural History, Chicago."

A DEVICE FOR EXHIBITING FADABLE MINERALS

It is well known that many minerals fade or change color on exposure to light to such an extent as to prevent their exhibition for any long period in public museums. Such minerals may be termed fadable minerals. Wine-colored topazes which lose their color completely, delicately shaded fluorite which becomes dull and lustreless, brilliant red crocoite which changes to a dull brick-red, transparent ruby-colored crystals of proustite and pyragyrite which turn black and opaque, and realgar which actually changes in composition and crumbles to a dull powder, may be mentioned as illustrations. Even some of the metallic minerals, such as pyrite, lose their brilliant lustre when exposed too harshly to light. These are but examples of the changes which long

exposure to light may produce in minerals and forbid their exhibition in museums in the ordinary way.

If the usual practice is followed of omitting such minerals from the exhibition series, many very attractive and showy specimens will be lost to view, and the visitor can get but an incomplete knowledge of the mineral kingdom from examining such a collection. To obviate this to some extent such minerals are, in the British Museum of Natural History, placed in their proper order in the exhibition series, but covered with wooden boxes. The boxes suggest the presence of additional specimens, but view of them can only be obtained by securing the attendance of the curator in person to open the case and lift the box. In the Paris Museum of Natural History, the fadable minerals are placed in their proper order in the collection, and panes of yellow glass are inserted over that portion of the case. This glass, by cutting off the actinic rays of light, largely prevents any fading of the mineral, but the appearance of the mineral is rendered quite unnatural. Aside from these two practices the writer has never seen any method adopted which would permit examination of fadable minerals by the visitor and at the same time protect them from light.

In the endeavor to accomplish these ends the device shown in the accompanying model has been prepared by the writer and is employed in the Field Museum of Natural History. The device consists of a mechanism which allows the visitor from without the case to raise boxes covering the fadable specimens but ensures automatic return of the boxes to place when the examination has been finished. This is accomplished in the following way: A button placed on the outside of the case connects with a concealed series of levers reaching to the covering box or boxes. On pressing the button the covering box is raised, and on removal of the pressure the box returns to place by its own weight. The specimens are thus protected from light except for the moment when it is desired to examine them. When several specimens which it is desired to protect occur in one case, the levers of the different boxes are connected by a single transverse rod which is controlled by a single button. In such cases it is usually necessary to weight the rod forward in order to insure return of the boxes to place. This is, however, easily accomplished. While the movements of the boxes might obviously be accomplished by means of electrical connections instead of the mechanical ones here employed, the mechanical method seems preferable since it avoids the necessity of wiring the case and of refilling batteries at frequent intervals. For the very ingenious joining of the levers to accomplish the control of

the boxes, the Museum is indebted to one of its carpenters, Mr. Valerie Legault. The device at present employed is applied to cases in the Museum which have sloping sides, but it can obviously be equally well applied to upright or even flat cases. While it has been devised only for the protection of minerals which are fadable, it will be evident that other objects requiring protection from light, such as insects, shells, and textiles, can be treated in a similar way.

President Holland.—"The paper is before you for discussion."

Mr. Frederick A. Lucas (Brooklyn Institute Museums).—"I was wondering whether it would not be well for the Association to patent this device so as to be able to use it."

Dr. Farrington.—"I shall be glad to hear the opinion of the Association on this point."

President Holland.—"This is a matter of practical importance. I think it is a very regrettable thing that a body of scientific men, working for one common end, should be exposed, through the cupidity of others who have not the general welfare at heart, to the risk of having an invention seized and patented by some one, who is not impelled by the same love for the general cause as the inventor is. I know of a number of museum inventions that have been patented by concerns and corporations. This Society cannot patent and take out patents. It is absolutely impossible. We have no corporate existence and until we do become a body corporate, and have rights of that sort, it would be impossible for us to take this step."

Treasurer Wilson.—"It would be possible to accomplish the same end by asking any individual to patent this for the benefit of the Society."

Mr. Frank C. Baker (Chicago Academy of Sciences).—"May I not suggest that the institution with which the inventor might be connected could patent it?"

President Holland.—"The Field Museum is a body corporate. Patents are not expensive."

Secretary Rea.—"Is it illegal to make a patentable article for your own use, if you do not sell it?"

President Holland.—"The Library Bureau has a patent upon a perforated card that is strung on a cord. There was a case not long ago in which they took steps to indict and prosecute a firm which was punching holes in cards and stringing them on cords. They obtained a judgment in their favor."

Dr. A. R. Crook (Illinois State Museum of Natural History, Springfield, Ill.).—"Would the method of using a transparent lacquer employed by silversmiths, protect the minerals in any way?"

Dr. Farrington.—"I do not know how far it has been tried. It might be good in some cases. For many delicate or fragile minerals, the lacquer would be somewhat injurious."

Dr. Crook.—"I would ask whether it might not be wise for us to incorporate."

President Holland.—"It seems to me this matter is one that might be submitted to the Council for consideration as to its propriety. To get a national charter is a difficult thing and, I think, involves considerable red tape."

Dr. Crook.—"I would like to move that the Council take this matter under consideration."

The motion was duly seconded and carried.

Mr. Baker.—"What is the relation of the public to this device? Would a playful boy, for example, or a person on mischief bent, be able to damage it? How does the public know there is a button to press?"

Dr. Farrington.—"We have had this device installed for only a short time, and we thought best not to indicate specially that the button was there. It turned out, however, that the public school children soon found it out and the word went round Chicago. They now take particular delight in pushing that button. We have not seen any damage resulting from it. I suppose, theoretically, there should be a label on the case stating what pressing the button will do."

Dr. James E. Talmage (Deseret Museum, Salt Lake City, Utah.).—"Touching the matter of legality or illegality of an individual copying a device for his own use, I have a perfect right to copy for my own individual use, but if I do it for an institution it is not for my own use. I am manufacturing that article for an institution, and that is certainly illegal. If I wish to do it for myself and myself only, I have a perfect right to make an imitation. I can do anything I like for myself."

"Touching the patentability of this device, I venture to suggest that it is not patentable. There are numerous devices by which we push buttons and pull knobs, and I feel certain we would have difficulty in patenting this one. The principle is not new; the application is. It is too good to be patented."

The following paper by Mr. Elmer E. Blackman, of the Nebraska State Historical Society, was then read by title.

SOME NEW POINTS IN COIN CASE CONSTRUCTION

Owing to my inability to be present, on account of conditions which arose at the last moment, I am sending my paper to be read, if you so desire. I had intended to be there with the case itself in perfect working order, so that a detailed description of the case would not be necessary, but since this is not possible a word picture is necessary.

The case which I expected to show is 27 inches long by 15 inches wide by 4 inches deep, inside measurement. The front is of glass the full size of the box and the back and sides are of wood. One-half of this box is door and one-half is case. The case is 2 inches deep, having a board back, and the door is 2 inches deep, having a glass front. It is hinged and locked together.

The slides or frames which hold the coins or other specimens rest on their axles in grooves made for them in the sides of the case and when the door is closed, these slides or frames are held firmly in position, so they may be turned on the axles by means of a handle extending to the outside of the case. There are eight of these frames in a case and four cases are intended to be placed, two and two, back to back, on a pedestal which will revolve, thereby allowing a good light to be reflected on each specimen even if the room be lighted from one direction only.

The specimens are held between the parallel bars of the slide or frame by means of adjustable springs so that, when the frame is turned, every side and edge of the specimen can be seen in the best possible light and can be brought within three inches of the eye if desired.

Coins require more floor space than any other class of relics, if shown in horizontal cases, and consequently the coin exhibit of many small museums is limited to give room for other exhibits.

If coins are handled at all they soon tarnish and if they are not handled it is very difficult for a student to examine them critically. I have certainly found it necessary to study the problem of mounting my coins in some more satisfactory way than I have ever observed in any museum. How well I have succeeded, you can judge better by a study of my case at close range.

However, I wish to say that coins are not the only specimens which may be mounted in these cases with profit. In the archæological department, Stone Age implements are shown to splendid advantage; an arrow head takes on a new interest when it can be viewed successively from every angle in the best possible light. Fossils of certain kinds are doubled in value for study when mounted so that a class may see them

from every view point. Very rare or curious shells can be shown in all their beauty when turned so that varying rays of light will pass through the delicately tinted curves. Bugs, butterflies, and like specimens may be mounted on pins through bits of cork and turned to get the best light and reflection. Thus exhibited, they will make one of the most popular and instructive features of a scientific museum, and yet be perfectly safe from destruction. Ores, agates, crystals, etc., if small, may be profitably mounted in cases like this.

These cases are intended for small specimens, as large specimens which may be viewed from a distance never give the curator a single moment of uneasiness. They cannot be carried off even if they are not locked up. They are so large any one can see them and the label may be made so large that he who runs may read, and it will not hide the specimen. Large specimens take care of themselves, but every museum man knows that the smaller the specimen, the more time and care it takes to mount it, label it, and select its position in the museum, so it may be seen, be safe, and be satisfactory.

When the countless thousands of small specimens are placed loosely on shelves with the label near, we all know the infinite amount of labor necessary to keep the exhibits presentable. With this case one specimen is as good as a hundred, and one mounting or label is good for ten years. The specimen is away from dust, safe under lock, and satisfactory in almost any light, as it may be turned to any angle. It requires no attention from the curator until he wishes to make a new grouping, or gets a better specimen.

In the matter of coins, the specimens may be polished as bright as possible, handled with a pair of chamois gloves and mounted rapidly. When the label is attached and the case closed, the coins will not oxidize as the case is nearly air tight. There is no occasion for opening the case, except once a year, or once in five years, to remove the dust which may get in or which evolves within the case.

Four of these cases should be mounted on a pedestal which will revolve. You can place the pedestal in any quarter of the room and turn each case to the best light for careful study. So mounted, coins will take less than one-hundredth the floor space they occupy now.

We must follow the lead of every avenue of activity and intensify the museum if we are to continue in our usefulness. We must have fewer duplicate specimens, fewer poor specimens, and so arrange our exhibit that our visitors are forced to see, study, and appreciate every specimen in our museum. The world has no time for poor specimens, even poor

specimens of humanity are brushed ruthlessly aside in our eagerness to pay homage to those who are really worthy of our attention.

Half the museums are so stored with duplicate material and are so indistinct that the masses absorb but little at a single visit. The cause of this is threefold:

First, the label lacks in force; one is not sure which of the various small specimens it indicates, and the label is not impressed on the mind in close and direct connection with the specimen. This criticism applies to the smaller museums which lack care, and to the minor specimens in larger museums.

Second, the light is inadequate. This is true in every museum for at least a part of the people all the time and all the people a part of the time. The specimen may be removed farther from the eye as the size increases. Dr. Oliver C. Farrington, of the Field Museum, Chicago, stated last year before this body that 36 inches is the extreme distance which objects in a case should be removed from the eye, and I believe the distance is well stated for the extreme, but I notice that we all bring the printed page or the object which we wish to inspect closely, from 8 to 16 inches before the eye. This certainly proves that we get more satisfaction from inspecting an article 12 inches distant than 36 inches distant. I will grant that much of this condition is due to habit and that many of us can see as well if the object is farther away, but we do not think so and so we think we enjoy the shorter range better. The museum is not a reformatory and we must meet conditions as we find them.

The third reason why the average museum is not distinctive, is of more importance and is the line along which reform must be inaugurated if we attain to the greatest usefulness. It is psychological in its nature and as we advance in mental growth, the need for the reform becomes less.

When my little boy goes down town with me his mother asks him, on his return, what he saw—"Oh, just horses, and people, and things." "What did you see in the windows?" "Oh, just things." Nothing distinctive. But when the kindergarten teacher has furnished a lesson on *one* object—say a bird—the boy comes home to tell more than I ever knew about that bird, and he inspires new interest in the specimen studied. "Men are only boys grown tall, hearts don't change much after all."

Our merchants know what I mean by this third lack of distinctive condition in a museum exhibit. They trim their show windows with a single costume on a perfect model and throw on it all the light possible. The old way was to place one mass touching another, one costume resting

against another, until every corner of the show window was filled and the masses of people saw "things"—nothing. Mass a quantity of material into an ordinary show case and the effect is the same. The eye takes in surrounding material until the mind cannot fasten on the object exhibited. Shut off other objects and to a certain extent isolate the specimen to be studied, as we do in this show case, and this defect is overcome to a great extent, as each specimen becomes a distinct exhibit and the mind fastens upon it in all its details as the student turns it into favorable light. The threefold difficulty in organizing a distinctive display is certainly overcome by the use of these cases.

The matter of time is a great factor in any museum, large or small. Specimens are mounted and exhibits are arranged and grouped in accordance with the time available for doing the work. At the best, it takes time to place a collection on exhibition and to label it properly. After a specimen is cleaned and prepared for mounting it can be placed in this case as quickly as it can be arranged in a flat show case, and when it is so placed it is off your hands for ten years. When the case is set in its place no one but the janitor need touch it for ten years and it always looks clean and fresh. It will take but two weeks or a month, on the other hand, to destroy the freshness of the exhibit in a large flat case where specimens are loose with labels near. Janitors cannot arrange and clean the exhibits. It keeps the curator and his assistants constantly busy, therefore, to maintain the museum in an orderly manner. When these cases are used, labor of this kind can be devoted to preparing and securing new material instead of constantly working over the old material. Any museum grows according to the ability of its staff to prepare and place material. Every museum has plenty of specimens which could be added if they but had the time to prepare them and the space to show them properly. I refer to historical museums more particularly, but it applies also to art museums, and to scientific museums to some extent.

Another feature of this case must not be overlooked. Someone has defined a museum as "a well assorted collection of labels, illustrated by a few well chosen specimens." If the exhibit must be farther than 36 inches from the eye, the label must be printed in 12 point type at least, and the size of the label completely obscures the specimen if that specimen is small. At 8 inches from the eye, 6 point type unlead may be used to better advantage, and the size of the label will not detract from the specimen, nor need the label be so large as to cover the specimen. When one looks at this case, where every specimen has its label, the specimens have

room to show themselves, and the label does not seem so conspicuous as to give one the idea that there is nothing but labels in the case.

These cases, mounted on a pedestal of four, or in any other way, will allow you to bring every specimen and every label within 8 inches of the eye if you are near sighted. There is no denying the fact that the few cases of this kind in my museum are studied more than any other part of the collection; somehow people like to turn the slides and thus keep the hands busy as they study. A psychologist may be able to explain this.

The cost of installing these cases will be about half the cost of equipping the museum in any other style case. In the first place the sides and back, as well as the frames within, may be made of pressed steel, which is very cheap. When the dies and formers are once installed in some central factory, the cost of turning out these cases in uniform size will be very small. The glass is small in size which makes the cost but little. Every detail of construction can be accomplished by machines, and the material is very cheap. No arrangements have yet been made for making these cases in commercial quantities, but you may rest assured that it will be done if the case is worthy. The pedestal of four cases should have the lower end about 40 inches from the floor and if the ordinary all-glass case is constructed 40 inches high and these pedestals arranged with the supports extending to the floor inside the case, all large specimens may be shown in these all-glass cases, which will certainly double the capacity of the room for museum purposes.

I suggest this as one way in which these cases may be used to advantage. They will also be found very useful in a room where posts or supporting pillars are necessary. Each post may be fitted with a revolving pedestal which will use the post as a support. There are many corners in every museum where these cases will be very advantageous. If I have given you some hint by which the efficiency of your museum may be improved, this paper has not been in vain.

Dr. T. Louis Comparette, of the United States Mint, Philadelphia, then presented a paper entitled "The Uses of a Collection of Historical Coins." Dr. James E. Talmage, of the Deseret Museum, Salt Lake City, then read the following paper:

POPULAR VERSUS SCIENTIFIC ARRANGEMENT OF
MUSEUM EXHIBITS

In place of the somewhat extended paper I had intended to present on this subject, I shall content myself with a relatively brief statement;—this, in view of the fact that my topic has been very well treated in papers and discussions already heard at this meeting.

That the museum, as an institution, is primarily educational, requires neither demonstration nor argument. That the institution known by the generally accepted term "public museum" is for the enlightenment and betterment of the general public necessarily follows.

The value and importance of material for the specialist's use alone; in other words, the status of museum collections designed for research and for pioneer exploration in the domain of the yet unknown, is acknowledged as fully as is the purpose of the general museum, which stands as the classified repository of material illustrative of the realms of the known.

The distinction between college and university has been emphasized here. The one is a school for instruction, the other a laboratory or seminary for research. The one is for the many, the other for the comparatively few. The one calls for apparatus and material for demonstration, the other for appliances requisite for investigation. The museum of the specialist is comparable to the research laboratory of the university; the "public museum" is like unto the college class room.

The college sometimes attempts the special work of the university school, of necessity does it poorly, and retards its own progress in its legitimate field. Some museums are imperfectly defined as to their scope, with a marked tendency toward arrangement and display on the basis of technical or so-called "scientific" classification.

Consider the instance afforded by collections of minerals. The mineralogist knows where to look for the particular mineral he seeks, according to the scientific classification based on details of chemical composition. He will look for native copper in the case devoted to elements; cuprite, he finds among the oxides; chalcocite in a distant case containing only sulfides; malachite and azurite repose in the carbonate cabinet; and chrysocolla dwells with the silicates.

This is all right for the trained mineralogist; but the museum student of less specialized ability wants to examine the principal copper minerals, and is assisted in finding them in reasonably close companionship.

Are we not prone to regard classification as an end rather than as a means? I would not underrate the value of true classification, nor

the importance of giving due expression thereto in a systematic arrangement of museum exhibits. But I know there are lessons to be taught by the specimen as an individual thing, apart from its relations to others of its kind.

A specimen duly identified and properly labeled is an index. By knowing its name we are able to locate its description in the literature of the subject; able to discover and to use what others have made known respecting it. But to know its name alone is of little value.

A season past I was traveling over one of our western deserts, riding alongside a man who was known as a systematic botanist. The plateau was carpeted in part by the delicate pink of the cranesbill or wild geranium blossoms. I questioned my companion as to the characteristics of special interest in connection with the little flowers. He told me in English, in Latin, and in a hybrid mixture of both, where the plant belonged in the botanist's scheme of arrangement; he discoursed on the distinguishing differences between the species *maculatum* and *dissectum*; and he told of the importance of the peculiar structure of the seed and its appendages as a means of identification and determination of species. To my surprise, I found that my learned friend had, after all, but a bare speaking acquaintance with the plant. That peculiarity of seed structure was an epitome of Nature's resource in adaptation. The plant is equipped for desert life; provision is made for the distribution of the seeds by means not known among other plants; it has a life history, to know which will make any man better and wiser. Eagerness to classify the rose may render one oblivious to its fragrance.

The museum must be more than a mere agglomeration of stuff; more than a storage vault for material however valuable in itself. Modern museum science emphasizes the distinction between exhibits for popular uplifting and the priceless collections of type specimens. Let the distinction be perpetuated, and in the arrangement of exhibits for the masses let the classification be that of service.

Chairman Lucas.—"Are there remarks on Dr. Talmage's paper?"

Dr. Daniel S. Martin (Department of Geology, Charleston Museum, Charleston, S. C.).—"I think he has presented an important aspect of the subject. I have long felt much the same way in regard to many of these things, and I am very glad he has brought it before us in the way he has. There are some points I might speak of, but there is not time at present, except to express my interest and sympathy."

Chairman Lucas.—"The next paper is by Dr. A. R. Crook, of the Illinois State Museum of Natural History, Springfield, Ill.

A SURVEY OF STATE NATURAL HISTORY MUSEUMS

This survey is the result of facts obtained by correspondence, by conversation, by consulting the returns obtained by our secretary, which he had the kindness to send me, and by consulting Merrill's report as published by the New York State Museum. The information obtained is more or less fragmentary but is presented as a nucleus—at least in my own mind—around which other facts may arrange themselves.

All the states and territories of the Union except New Hampshire, Massachusetts, Rhode Island, Connecticut, Delaware, South Carolina, Mississippi, Indian Territory, Oklahoma, Texas, New Mexico, Utah, Nevada, and Oregon have state museums and some of these may have such departments, though the writer lacks information concerning them. In brief, among forty-eight states, thirty-two, or two-thirds, have state museums.

In many instances these museums were begun as a direct result of the work of geological surveys. Such is the case in Maine, New York, New Jersey, Maryland, Virginia, Georgia, Alabama, Tennessee, Kentucky, Ohio, Indiana, Illinois, Wisconsin, Minnesota, Iowa, Missouri, North and South Dakota, Nebraska, Wyoming, and Washington. In some cases this relationship has continued, while in others the departments are now separated. In Colorado and California the museums exist as departments of the State Bureau of Mines. In some states—for example, North Carolina—the museum is an adjunct to the department of agriculture.

Occasionally state museums have resulted from the bringing together of collections which were assembled on account of some national exhibition. For example, New Jersey prepared an exhibit for the World's Columbian Exposition in Chicago, and Louisiana for its exhibit in New Orleans, and these materials were wisely used by the state legislatures as a basis for state museums.

In many instances the museums are at the same locality and under the control of the state university. This often results both in advantage to the students of the institution and in the welfare of the museum, since various specialists in the university give the museum the benefit of their knowledge. This is the case in Maine, Virginia, Ohio, Michigan,

Wisconsin, Minnesota, Iowa, Arkansas, North and South Dakota, Idaho, Washington, and Arizona.

In equipment, administration, and financing, state museums show great diversity. Some of them are not much more than a collection of a few odds and ends, looked after by one official only. He often gives but a portion of his time and receives but a few hundred dollars for all expenses, including his own remuneration. In other cases the institutions have millions of specimens magnificently housed. They are cared for by a force of thirty or more trained workers and have as much as forty thousand dollars annually for their work.

The fact that a museum is conducted by the state, while imposing upon it some especial obligations, does not remove from it the necessity of carrying out the work of the general museum. If it is a museum of natural history it should have collections of a general nature such as would be expected in any museum representing those subjects. But while a general museum is an epitome of the world, the state museum should be an epitome of the particular state in which it is located. It should have enough material to represent, however modestly, all the essential facts touched upon by the various departments treated, and above all should aim to be a store house and valuable treasury of the objects which characterize the natural history represented within its confines. For example, Illinois should have the most complete exhibit of fluorite possible; North Carolina of corundum; Maine of tourmaline; Arizona of malachite; New Mexico of turquoise; Wyoming of dinosaurs and fossil fishes. Unfortunately, at present, the archaeology, zoölogy, botany, or mineralogy of but few states is best represented in their respective capitols. And the citizen who wishes to become conversant with these things which represent his immediate neighborhood is forced to seek for material in museums in distant cities. Possibly not more than three states, at present, approximate collections of such perfection as should characterize each commonwealth.

The city museum is chiefly occupied in administering to the population in its near vicinity. The state museum administers to a non-urban population as well as to the citizens of many cities. It should plan to perform a service not only for those who can visit it but also for people too remote or otherwise unable to come to it.

It should preserve and exhibit natural history treasures for the citizen in the remotest portions of its confines. A practical way to accomplish this is for the museum to furnish the high schools of the state with typical collections in various branches as is being so splendidly done by the

Philadelphia Museums and has been for three years advocated in Illinois. The simplest form is the permanent exhibit, since that requires less continuous work and expense such as follow from repeated reshipments, book-keeping, correspondence, etc., though for permanent loan exhibits the initial work is greater, since many hundreds of collections must be provided. If a permanent exhibit loses the attractiveness which characterizes a freshly received package, the loss may be more than compensated for by the constant accessibility of the collections. If it is not rightly used, the fault lies with the local instructor and not with the institution making the gift.

Another form of activity which should characterize the state museum is that of participation in international, national, and regional exhibitions. The museum should have collections properly prepared for such service, so that, with minimum expense and trouble, attractive representations of the state could be made. In the newer states this would result in favorable advertising and for all the states it would be a contribution toward the common good. People unable to make long trips would have a truer conception of our great commonwealth and hence would be better business men, better citizens, better human beings.

It is sometimes intimated that the museum field is not one appropriate to the state government. Are the members of the American Association of Museums in a position to decide such a question? Can we take an attitude sufficiently Zangwillian—sufficiently altruistic—to answer either affirmatively or negatively according to the facts and irrespective of our own enthusiasm for museums?

Is it the function of a state to furnish the people with amusement? The impartial witness would reply that such is a legitimate function when the amusement is of such a nature as to make the people better citizens, and especially so when the materials furnishing the entertainment are being preserved for other necessary and valuable purposes.

That education is a legitimate function of government, is universally recognized whether the means be that of the common school, the university, or the museum. In the museum the work of education is especially justified since here are shown various steps in the progress of the community, steps which in some cases have been *per aspera ad astra*, while in others they have led through pleasant fields and by still waters. The museum as one of the most striking witnesses to the necessity of the conservation of natural resources is furnishing education of the greatest value to the present and coming generations. The fact that the museum can forcibly contribute to the financial prosperity of the people, by supply-

ing information concerning raw materials and finished products, is one argument in its favor most readily admitted by legislators.

That state museums in many cases have not been more prosperous and efficient has often been due to primitive conditions in the government of the various states. Far too often the skill and exactness shown in the business and scientific world have been wanting. The custom, quite prevalent in departments of state service, of placing in charge men who are chosen for personal reasons rather than because of especial fitness has far too generally obtained. The presence of the "Fachman," so characteristic of the university and business world alike, has been conspicuous by his absence. But progress in this line is being made, and as the state employs lawyers in its legal department and medical men in its boards of health, and men of finance for conducting its banking system, so it will employ specialists in all the various departments, the museum included, just as rapidly as it advances from primitive conditions to those characterized by culture.

In this country many colleges and universities were inaugurated under private auspices or those of some religious organization. The state did not take up the work of higher education till later. But when that work was begun, phenomenal results followed, till to-day the state universities are among our greatest institutions and their promise in the future is beyond calculation. Similarly while the state has been behind private individuals, city governments, and scientific societies in the founding and development of museums yet it is probable that, as the wealth and culture of the people increase, state museums will develop into institutions which preserve records of vanished fauna and flora; which contain creditable quantities of well-arranged objects of natural history; which furnish exhibits for prominent expositions; which supply all schools with illustrations of the natural history of the state; and which are administered by trained and conscientious officials.

They will thus become magnificent institutions contributing to the entertainment, education, and profit of the people and making themselves felt as a dynamic force.

President Holland here resumed the chair.

Treasurer Wilson.—"There are a great many museums and some historical societies, that have magnificent museums of historical matter, which ought to be connected with this Association. I hope everyone will help and correspond with the Secretary or with me. We are includ-

ing Canada and those countries to the south of us. I should be very thankful for any notification of such museums, or their directors and officers with whom we might correspond and give them invitations to join us. We wish to make this Association cover the museums of North and South America. The director of the National Museum of Bogota has written me during the past year. I meant to have read that letter to you. The directors of the different institutions outside of the United States are all interested, and we wish them to coöperate with us."

Mr. George Francis Dow (Essex Institute, Salem, Mass.).—"It seems to me there may be a considerable number of museums not familiar with our work; perhaps, not even possessed of the knowledge that such an association exists. Would it be at all lacking in dignity to make known in a definite printed circular our aims and the fact that we publish an annual volume, so that they may have it on their shelves?"

Secretary Rea.—"It was part of my idea in preparing this directory that it should serve as the basis of a campaign for increased membership."

Treasurer Wilson.—"Is this directory of museums intended to include the museums in Canada, Mexico, United States, and South America? If so, I am sure we shall have to prepare a small circular with great care and send it to all these foreign museums. I have letters from museums in the city of Mexico and from the National Museum in Bogota, and, I believe, from one of the museums in Buenos Aires, expressing cordial feeling for what we are doing, and one from Mexico, apologizing for not being able to attend this year."

President Holland.—"Our friends on the South American continent will be glad to aid. To a certain extent their sympathies and interests are with us."

Dr. James E. Talmage (Deseret Museum, Salt Lake City, Utah).—"These letters may well be incorporated in the volume of our *Proceedings*. I move that they be read and printed if desirable."

The motion was seconded and carried.

President Holland.—"We were invited, at Chicago, to hold our meeting in the year 1910 at Buffalo. A very cordial and pressing invitation was extended to us, and Buffalo is represented on this occasion by Mr. Howland and others. We shall be glad to hear from our friends in Buffalo whether the arrangement made last year will stand, because we understand that Cupid and Death have both had something to do in Buffalo since that invitation was extended to us."

Mr. Henry R. Howland (Buffalo Society of Natural Sciences, Buffalo, N. Y.).—"On behalf of the Buffalo Society of Natural Sciences, on behalf

of the Buffalo Historical Society, the Albright Gallery, and the Buffalo Academy of Fine Arts, and on behalf of His Honor the Mayor of Buffalo, I desire to express the pleasure we feel in the acceptance last year of the invitation we extended to you, that you should meet with us in 1910. We anticipate great pleasure in the privilege of having you there. It has been suggested to the Council that the meeting might be made a little later than this year in order that Buffalo might begin to put on her spring dress. We shall welcome you to one of the most beautiful cities in the United States. We stand at some of the gateways of Paradise. Those who know Niagara Falls and the river and gorge have that pleasure in anticipation. We welcome you most gladly and an effort will be made to give you a most happy visit. On behalf of the Buffalo Society of Natural Sciences I desire to thank you for the acceptance of the offer that we should publish at our cost the Directory of Museums. That will give us great pleasure." (*Applause.*)

Upon motion of Mr. Frederic A. Lucas, it was voted that the Secretary and Council be empowered to fix the date for the Buffalo meeting, upon consultation with the local committee. A vote of thanks was extended through Mr. Howland to the authorities of the institutions who extended the invitation to meet in Buffalo.

Secretary Rea then read the following resolutions, which were unanimously adopted.

Resolved, That the heartfelt thanks of the American Association of Museums are hereby tendered to Dr. W. P. Wilson, Director of the Philadelphia Museums, and to his associates on the committee of arrangements, for the extremely generous and hospitable provision made by them for the entertainment of the Association.

Resolved, That the thanks of the Association are hereby tendered to Hon. John E. Reyburn, the Mayor of Philadelphia, for the cordial welcome extended by him to the Association.

Resolved, That the thanks of the Association are hereby tendered to Mr. John E. D. Trask, Secretary and Manager of the Pennsylvania Academy of Fine Arts; to the Trustees of the Pennsylvania Museum, and to Dr. Edwin Atlee Barber, Director of that Institution; to Dr. Arthur Erwin Brown, Secretary of the Zoological Society of Philadelphia; to the Trustees of the Drexel Institute, and to Dr. James MacAlister, the President of that Institute; to the Trustees and Gentlemen connected with the administration of the Philadelphia Museums; to the Trustees and Officers of the Free Museum of Science and Art; to Dr. Milton J. Greenman, and the Trustees of the Wistar Institute of Anatomy; to the Trustees and Officers of the Academy of Natural Sciences of Philadelphia; to the Authorities of the United States Mint; to the Wagner Free Institute of Science; to the Pennsylvania Historical Society; to the School of Industrial Art; to

the School of Design for Women; to the American Philosophical Society; to the Franklin Institute; to the Normal Training High School and Library; and to the Philadelphia Girls' Normal School; for the kind entertainment and hospitality extended to the Association.

Resolved, That the thanks of the Association be extended to Dr. Thompson of the Philadelphia Public Library, to Dr. W. P. Wilson, and to other kind citizens of Philadelphia, who provided automobiles for the transportation of the members of the Association to different points of interest.

Treasurer Wilson then announced that, after a luncheon to be provided by the Academy, the Association would be conveyed by automobiles to inspect the United States Mint, the Free Library, the Wagner Free Institute of Science, the School of Design for Women, the Wagner Free Reference Library, and Independence Hall.

President-elect Lucas then took the chair and, after a vote of thanks to Dr. Holland had been passed, the Association adjourned to meet at Buffalo in 1910.

APPENDIX

CONSTITUTION OF THE AMERICAN ASSOCIATION OF MUSEUMS

ARTICLE I

NAME

The name of this Association shall be "The American Association of Museums."

ARTICLE II

OBJECT

The object of this Association shall be to promote the welfare of Museums, to increase and diffuse knowledge of all matters relating to them, and to encourage helpful relations among Museums and those interested in them.

ARTICLE III

MEMBERSHIP

All Museums officially represented at the first meeting of this Association, held at the American Museum of Natural History in New York, on May 15, 1906; all persons taking part in the organization of this Association, or who on the above date, or prior thereto, have by letter signified their wish to become members of the Association, shall become Charter Members on payment before the next annual meeting of the Association of the fees hereinafter provided for.

The Members of the Association shall be Active, Associate, Sustaining, and Honorary.

Persons actively engaged in the work of Museums may become Active Members on the payment of two dollars per annum, and may become Active Members for Life upon payment of thirty dollars at any one time.

Persons not actively engaged in the work of Museums, contributing five dollars per annum, may become Associate Members.

Each Museum paying not less than ten dollars a year shall be a Sustaining Member of the Association, and through its chief executive officer, or a properly accredited representative, shall be entitled to cast a vote on all matters coming before the Association.

Persons distinguished for eminent services, either to the cause of Museums or to this Association, may become Honorary Members. The number of Honorary Members shall be limited to fifteen. When ten Honorary Members have been elected then thereafter not more than two such members may be elected annually.

Active and Sustaining Members only shall have a right to vote, and Active Members only may hold office.

Any Museum or person proposed in writing for Active, Associate, or Sustaining Membership by a Member of the Association, and approved by the Council, upon the payment of the proper fee shall become a Member of the Association.

Any person contributing five hundred dollars or more at any one time shall become a Patron of the Association.

ARTICLE IV

OFFICERS

The officers of the Association shall be a President, two Vice-Presidents, a Secretary, and a Treasurer, and six other persons designated as Councillors, and these eleven shall constitute the Council. The President and two Councillors chosen by the Association shall retire annually, and for one year shall be ineligible for re-election to the same office.

ARTICLE V

COUNCIL

The general control of the affairs of the Association, except as otherwise herein provided, shall be vested in the Council.

ARTICLE VI

ELECTION OF OFFICERS

Officers shall be elected by ballot at the annual meeting.

The Council shall have power to fill any vacancies which may occur in its membership between annual meetings.

ARTICLE VII

MEETINGS

A general meeting shall be held in each calendar year. Special meetings may be appointed by the Association or called by the Council. The time and place of the annual meeting shall be determined by the Association. In order to diffuse a knowledge of Museums and their work, the Association shall meet in a different city or town each succeeding year, unless otherwise determined by the Association.

At the annual meeting papers may be read, matters relating to Museums discussed, and any business relating to the affairs of the Association shall be transacted.

Special meetings may be called by the Council in emergencies, and only matters stated in the call shall be considered at such special meetings.

REPORT OF THE TREASURER OF THE AMERICAN ASSOCIATION OF MUSEUMS PRESENTED AT THE ANNUAL MEETING, PHILADELPHIA, MAY 11-14, 1909

Balance on hand at meeting, May 5, 1908..... \$653.46

RECEIPTS

| | |
|--|------------------|
| 4 Active membership fees for year ending May 15, 1907..... | 8.00 |
| 7 Active membership fees for year ending May 15, 1908..... | 14.00 |
| 160 Active membership fees for year ending May 15, 1909..... | 320.00 |
| 4 Active membership fees for year ending May 15, 1910..... | 8.00 |
| 3 Sustaining memberships for year ending May 15, 1908..... | 30.00 |
| 26 Sustaining memberships for year ending May 15, 1909..... | 260.00 |
| Sale of publication..... | 1.00 |
| J. H. Gest, Amount overpaid in error..... | 8.00 |
| Total receipts..... | <u>\$1302.46</u> |

EXPENDITURES

| | |
|---|----------------------------------|
| 1908 | |
| June 3, To Adams Express Co. (expressage)..... | \$0.55 |
| June 3, To Adams Express Co. (expressage)..... | .75 |
| June 3, To Altemus & Co..... | .10 |
| June 6, To P. M. Rea, as follows; | |
| The Charleston Museum (postage) . | \$3.23 |
| Daggett Printing Co. (printing) . . . | 5.00 |
| Henry Laurens (stenographic work) . | 5.20 |
| | <u>13.43</u> |
| June 6, To Neil Satterlee (reporting proceedings).... | 90.80 |
| June 27, To Philadelphia Museums (printing)..... | 2.90 |
| June 30, To Wm. H. Hoskins Co. (stationery) | .75 |
| July 1, Cash for postage stamps | .74 |
| July 2, To Philadelphia Museums (postage stamps) .. | 4.00 |
| July 11, To Cincinnati Museum Association (refund of amount overpaid for J. H. Gest)..... | 8.00 |
| July 20, To U. S. Express Co. (expressage) | .25 |
| July 21, To Henry Laurens (typewriting for secretary) | 2.70 |
| July 25, To A. A. Clinger (stenographic and clerical work for treasurer)..... | 5.00 |
| Aug. 10, To A. A. Clinger (stenographic and clerical work for treasurer)..... | 5.00 |
| Carried forward..... | <u>\$134.97</u> <u>\$1302.46</u> |

| | | |
|---|----------|-----------|
| Brought forward..... | \$134.97 | \$1302.46 |
| 1909 | | |
| Jan. 26, To Philadelphia Museums (printing)..... | 1.10 | |
| Mar. 20, To Paul M. Rea, Sec. (miscellaneous expenses)..... | 41.27 | |
| Mar. 22, To Frederick O. Bemm (photographs of group)..... | 2.00 | |
| Mar. 23, To Williams & Wilkins Co. (printing)..... | 40.00 | |
| Mar. 25, To Philadelphia Museums (expressage)..... | 1.20 | |
| Mar. 30, To Philadelphia Museums (printing)..... | 2.00 | |
| Mar. 31, To Sassard Bros. (printing for secretary)..... | 5.00 | |
| Apr. 21, To Williams & Wilkins Co. (Printing of <i>Proceedings</i> and reprints of papers)..... | 360.30 | |
| Apr. 29, To Williams & Wilkins Co. (expressage)..... | 3.89 | |
| Apr. 30, To A. A. Clinger (postage stamps)..... | 9.00 | |
| May 7, To Paul M. Rea (postage, post cards, supplies, stenographic and clerical work)..... | 38.72 | |
| May 7, To the Daggett Printing Co. (printing and envelopes)..... | 17.00 | |
| May 7, To Whitehead & Hoag Co. (button badges)... | 6.00 | |
| Total expenditures..... | | 662.45 |
| Balance in treasury, May 10, 1909..... | | \$640.01 |

W. P. WILSON

Treasurer.

Examined and found correct:

GEORGE FRANCIS DOW,

FRANK C. BAKER,

O. C. FARRINGTON,

Auditing Committee.

MEMBERS OF THE AMERICAN ASSOCIATION OF MUSEUMS

LIFE MEMBERS

The asterisk (*) denotes a Charter Member.

- Crook, A. R., Curator, Illinois State Museum of Natural History, Springfield, Ill.
- *Hall, Robert C., Owner, Hall Museum of Anthropology, 240 Fourth Ave. Pittsburgh, Pa.
- *Henshaw, Samuel, Curator, Museum Comparative Zoölogy, Harvard University, Cambridge, Mass.
- *Holland, W. J., Director, Department of the Museum, Carnegie Institute, Pittsburgh, Pa.
- *Minot, Charles S., Harvard Medical School, Boston, Mass.
- *Talmage, James E., President, Deseret Museum, Salt Lake City, Utah.

ACTIVE MEMBERS

- *Adams, Charles C., University of Chicago, Chicago, Ill.
- Aitkin, Helen J., Assistant, Brooklyn Institute Museum, Brooklyn, New York.
- *Akeley, C. E., Taxidermist-in-chief, Field Museum of Natural History, Chicago, Ill.
- *Allen, J. A., Curator of Mammalogy and Ornithology, American Museum of Natural History, New York, N. Y.
- *Ami, Henry M., Geological Survey of Canada, 453 Laurier Ave., East, Ottawa, Canada.
- Atkinson, D. A., Custodian of Reptiles, Carnegie Museum, Pittsburgh, Pa.
- Austin, Thomas L., Curator, Public Museum, Erie, Pa.
- *Baker, Frank C., Curator, The Chicago Academy of Sciences, Lincoln Park, Chicago, Ill.
- *Barber, Edwin Atlee, Director and Secretary, Pennsylvania Museum and School of Industrial Art, Fairmount Park, Philadelphia, Pa.
- *Barbour, Erwin Hinckley, Curator, State Museum, Lincoln, Neb.
- Beatty, John W., Director, Department of Fine Arts, Carnegie Institute, Pittsburgh, Pa.
- *Bennett, Bessie, Assistant to the Director, The Art Institute of Chicago, Chicago, Ill.
- *Berg, George L., Director, Washington State Art Association, Seattle, Wash.
- Bethel, Ellsworth, President, Colorado Academy of Science, Denver, Col.
- Beutenmüller, William, Curator, Department of Entomology, American Museum of Natural History, New York, N. Y.

- Bibbins, Arthur Barnweld, Director of the Museum, Woman's College, Baltimore, Md.
- Blackman, Elmer Ellsworth, Archæologist, Nebraska State Historical Society, Lincoln, Neb.
- *Brigham, William T., Director, Bernice Pauahi Bishop Museum, Honolulu, H. I.
- Brimley, Herbert H., Curator, North Carolina State Museum, Raleigh, North Carolina.
- *Britton, N. L., Director-in-chief, New York Botanical Garden, Bronx Park, New York, N. Y.
- Brown, Arthur Erwin, Vice-President, Academy of Natural Sciences; Director, Zoölogical Gardens, Philadelphia, Pa.
- Brown, Stewardson, Acadèmy of Natural Sciences, Philadelphia, Pa.
- Brues, Charles Thomas, Curator of Invertebrate Zoölogy, Milwaukee Public Museum, Milwaukee, Wis.¹
- *Bryan, William Alanson, President, Pacific Scientific Institution, Box 38, Honolulu, H. I.
- *Bryan, Mrs. William Alanson, Box 38, Honolulu, H. I.
- *Bumpus, Hermon C., Director, American Museum of Natural History, New York, N. Y.
- *Burchard, Edward L., Executive Secretary, Chicago School of Civics, 158 Adams St., Chicago, Ill.
- Burkholder, C. H., Assistant to the Director, The Art Institute of Chicago, Chicago, Ill.
- Carpenter, Newton H., Secretary, The Art Institute of Chicago, Chicago, Illinois.
- *Clarke, Sir Casper Purdon, Director, Metropolitan Museum of Art, New York, N. Y.
- Coggeshall, Arthur S., Preparator-in-chief, Department of Paleontology, Carnegie Museum, Pittsburgh, Pa.
- *Collie, George L., Curator, Logan Museum, Beloit College, Beloit, Wis.
- Comfort, George F., Director, Syracuse Museum of Fine Arts, Syracuse, New York.
- *Comparette, T. Louis, Curator, Numismatic Collection, United States Mint, Philadelphia, Pa.
- Cory, C. B., Curator of Zoölogy, Field Museum of Natural History, Chicago, Illinois.
- Covert, Adolphe Boucard, Curator, University of Cincinnati Museum, Cincinnati, Ohio.
- Cummings, Dr. Carlos E., Secretary, Buffalo Society of Natural Sciences, Buffalo, N. Y.
- Dahlgren, B. E., Assistant Curator of Invertebrate Zoölogy, American Museum of Natural History, New York, N. Y.
- *Dean, Bashford, Curator of Fossil Fishes, American Museum of Natural History; Curator of Arms and Armor, Metropolitan Museum of Art, New York, N. Y.

¹ Now of the Bussey Institution, Harvard University.

- *de Forest, Robert W., Trustee and Secretary, Metropolitan Museum of Art, New York, N. Y.
- *Dorsey, George A., Curator of Anthropology, Field Museum of Natural History, Chicago, Ill.
- Douglass, Earl, Assistant in Research Section of Paleontology, Carnegie Museum, Pittsburgh, Pa.
- *Dow, George Francis, Secretary and Curator of the Museum, Essex Institute, Salem, Mass.
- *Dyche, L. L., Curator of Birds and Mammals, State University, Lawrence, Kansas.
- *Eastman, Charles R., Curator of Vertebrate Paleontology, Museum of Comparative Zoölogy, Harvard University, Cambridge, Mass.
- *Eigenmann, Carl H., Professor of Zoölogy and Dean of the Graduate School, Indiana University, Bloomington, Ind.; Curator of Ichthyology, Carnegie Museum, Pittsburgh, Pa.
- Emerson, Alfred, Assistant to Director, The Art Institute of Chicago, Chicago, Ill.
- Failing, Henrietta H., Curator, Portland Art Association Museum of Art, Portland, Oregon.
- Fairbanks, Arthur, Director, Museum of Fine Arts, Boston, Mass.
- *Farrington, Oliver C., Curator of Geology, Field Museum of Natural History, Chicago, Ill.
- Fisher, Fannie, Assistant Curator, Illinois State Museum of Natural History, Springfield, Ill.
- Foulke, J. B., Administrative Assistant, American Museum of Natural History, New York, N. Y.
- *Fox, William Henry, Director, John Herron Art Institute, Indianapolis, Indiana.
- *French, William M. R., Director, The Art Institute of Chicago, Chicago, Illinois.
- Fuller, R. G., Assistant in Anthropology, Peabody Museum, Cambridge, Mass.
- ✓ *Gallup, Anna Billings, Curator, The Children's Museum, Brooklyn Institute of Arts and Sciences, Brooklyn, N. Y.
- *Gest, J. H., Director, The Cincinnati Museum Association, Cincinnati, Ohio.
- *Gilman, Benjamin Ives, Secretary, Museum of Fine Arts, Boston, Mass.
- Glenk, Robert, Curator, Louisiana State Museum, New Orleans, La.
- Glenn, L. C., Vanderbilt University Museum, Nashville, Tenn.
- Goodale, George Lincoln, Honorary Curator, Harvard Botanic Garden, Harvard University, Cambridge, Mass.
- *Goodyear, William H., Curator of Fine Arts, Brooklyn Institute of Arts and Sciences, Brooklyn, N. Y.
- Goll, George P., Curator's Assistant, Philadelphia Museums, Philadelphia, Pennsylvania.
- *Gordon, G. B., Curator, Section of Ethnology, Free Museum of Science and Art, Philadelphia, Pa.

- Grant, U. S., Curator, Museum of the College of Liberal Arts, Northwestern University, Evanston, Ill.
- Greenman, Jesse M., Assistant Curator of Botany, Field Museum of Natural History, Chicago, Ill.
- *Greenman, Milton J., Director, The Wistar Institute of Anatomy, Philadelphia, Pa.
- ✓ *Griffin, Delia Isabel, Director, The Fairbanks Museum of Natural Science, St. Johnsbury, Vt.
- *Griffith, A. H., Director, Detroit Museum of Art, Detroit, Mich.
- ✓ Grinnell, Joseph, Director, Museum of Vertebrate Zoölogy, University of California, Berkeley, Cal.
- Gross, A. O., Taxidermist, University of Illinois Museum, Urbana, Ill.
- Gueret, E. M., Assistant Curator, Division of Osteology, Field Museum of Natural History, Chicago, Ill.
- *Hall, Christopher W., Curator, Geological Museum, University of Minnesota, Minneapolis, Minn.
- Hartman, C. W., Curator of Archæology and Ethnology, Carnegie Museum, Pittsburgh, Pa.¹
- Hastings, George T., Assistant Curator, Philadelphia Museums, Philadelphia, Pa.
- ✓ *Henderson, Junius, Curator of the Museum, University of Colorado, Boulder, Col.
- *Hitchcock, Charles H., Curator, Butterfield Museum, Dartmouth College, Hanover, N. H.
- *Hollick, Arthur, Curator, Department of Fossil Botany, New York Botanical Garden, New York, N. Y.
- Hooper, Franklin W., Director, The Brooklyn Institute of Arts and Sciences, Brooklyn, N. Y.
- *Hornaday, William T., Director, New York Zoölogical Park, New York, New York.
- *Houston, S. F., President, Department of Archæology, University of Pennsylvania, Philadelphia, Pa.
- *Hovey, Edmund Otis, Associate Curator, Department of Geology, American Museum of Natural History, New York, N. Y.
- Howe, Marshall A., Curator of the Museum, New York Botanical Garden, New York, N. Y.
- ✓ Howland, Henry R., Superintendent, Buffalo Society of Natural Sciences, Buffalo, N. Y.
- Hutchinson, Charles L., President, Board of Trustees, Art Institute, Chicago, Ill.
- Hyett, William James, in charge of Paintings, Department of Fine Arts, Carnegie Institute, Pittsburgh, Pa.
- Ives, Halsey C., Director, City Art Museum, Forest Park, St. Louis, Mo.
- *Jenkins, L. W., Curator of Ethnology, Peabody Museum, Salem, Mass.
- ✓ Jennings, Otto E., Assistant Curator of Botany, Carnegie Museum, Pittsburgh, Pa.

¹Now Curator, Ethnographical Museum, Stockholm, Sweden.

Jennings, Mrs. Otto E., Assistant in Section of Botany, Carnegie Museum, Pittsburgh, Pa.

✓ *Johnson, Charles W., Curator, Boston Society of Natural History, Boston, Mass.

Jones, Lynds, Curator of the Museum, Oberlin College, Oberlin, Ohio.

*Kahl, Paul Hugo Isidor, Custodian, Entomological Museum, Carnegie Institute, Pittsburgh, Pa.

Katzenberger, George A., Curator, Museum of Carnegie Library, Greenville, Ohio.

Kent, Henry W., Assistant Secretary, Metropolitan Museum of Art, New York, N. Y.

*Kermode, Francis, Curator, Provincial Museum, Victoria, B. C.

Koehler, Robert, Director, Minneapolis School of Fine Arts, Minneapolis, Minn.

*Kunz, George F., Honorary Curator of Gems, American Museum of Natural History, New York, N. Y.

*Lamb, Daniel Smith, Pathologist, Army Medical Museum, Washington, D. C.

Levy, Florence N., Editor, Art Annual, 546 Fifth Ave., New York, N. Y.

*Lindahl, Josua, Late Director of the Museum, Cincinnati Society of Natural History, Cincinnati, Ohio. Address: 7732 Chauncey Ave., Chicago, Ill.

*Link, Gustave A., Taxidermist, Carnegie Museum, Pittsburgh, Pa.

Lippincott, Elsie, Librarian, Field Museum of Natural History, Chicago, Illinois.

Loomis, Leverett Mills, Director of the Museum, California Academy of Sciences, San Francisco, Cal.

✓ *Lucas, Frederic A., Curator-in-Chief, Museums of Brooklyn Institute of Arts and Sciences, Brooklyn, N. Y.

MacAlister, Mary T., Curator of Museum of Drexel Institute, Philadelphia, Pa.

*MacCurdy, George Grant, Curator, Section of Anthropology, Yale University Museum, New Haven, Conn.

*McGee, W. J., Director, St. Louis Public Museum, St. Louis, Mo.

*McGuire, F. B., Director, Corcoran Gallery of Art, Washington, D. C.

McIlvaine, Mabel, Assistant, Metropolitan Museum of Art, New York, N. Y.

McIntosh, William, Curator, Natural History Museum, St. John, N. B.

Maddox, Robert D., Curator, Medical Museum, University of Cincinnati, Cincinnati, Ohio.

Madison, H. L., Curator, Park Museum, Providence, R. I.

Martin, Daniel S., Honorary Curator, Department of Geology, Charleston Museum, Charleston, S. C.

Meek, Seth E., Curator, Department of Ichthyology, Field Museum of Natural History, Chicago, Ill.

Mengel, Levi W., Director, Reading Public Museum, Reading, Pa.

Meyers, Ira B., Curator, School of Education Museum, University of Chicago, Chicago, Ill.

- Miller, Paul C., Walker Museum, University of Chicago, Chicago, Ill.
- ✓ *Mills, William C., Curator and Librarian, Ohio State Archaeological and Historical Society, Ohio State University, Columbus, Ohio.
- Millspough, Charles F., Curator of Botany, Field Museum of Natural History, Chicago, Ill.
- ✓ *Miner, Roy W., Assistant Curator of Invertebrate Zoölogy, American Museum of Natural History, New York, N. Y.
- *Montgomery, Henry, Curator of the Museum, University of Toronto, Toronto, Ontario.
- Moorehead, Warren K., Curator, Department of Archæology, Phillips Academy, Andover, Mass.
- Morris, E. L., Curator of Natural Science, Brooklyn Institute Museum, Brooklyn, N. Y.
- ✓ *Morse, Edward S., Director, Peabody Museum, Salem, Mass.
- *Morse, Silas R., Curator, New Jersey State Museum, Trenton, N. J.
- *Nachtrieb, Henry F., Curator, Zoölogical Museum, University of Minnesota, Minneapolis, Minn.
- Nichols, Henry W., Assistant Curator of Geology, Field Museum of Natural History, Chicago, Ill.
- *Nutting, Charles C., Curator, Museum of Natural History, State University of Iowa, Iowa City, Iowa.
- Ortmann, Arnold E., Curator of Invertebrate Zoölogy, Carnegie Museum, Pittsburgh, Pa.
- Paarmann, J. H., Curator, Davenport Academy of Sciences, Davenport, Iowa.
- Perine, Clara N., Assistant to the Director, Wistar Institute of Anatomy, Philadelphia, Pa.
- *Peterson, Harry C., Curator, Leland Stanford Jr. Museum, Palo Alto, California.
- *Peterson, Olaf August, Field Collector and Preparator of Mammals and Birds, Carnegie Museum, Pittsburgh, Pa.
- Pickard, John, University of Missouri, Columbus, Mo.
- Pitkin, Albert H., Associate of the Wadsworth Athenæum, Box 867, Hartford, Conn.
- ✓ Pollard, Charles Louis, Curator-in-Chief, Staten Island Association of Arts and Sciences, New Brighton, N. Y.
- Prentice, Sydney, Artist and Illustrator, Carnegie Museum, Pittsburgh, Pa.
- Putnam, Edward K., Acting Director, Academy of Sciences, Davenport, Iowa.
- *Putnam, Frederick W., Honorary Curator, Peabody Museum, Harvard University; Professor Emeritus of Anthropology, University of California. Address: Cambridge, Mass.
- Ranck, Samuel H., Librarian, Grand Rapids Public Library, Grand Rapids, Mich.
- ✓ *Rathbun, Richard, Assistant Secretary, Smithsonian Institution, in charge U. S. National Museum, Washington, D. C.
- ✓ *Rathmann, C. G., Director, Educational Museum, St. Louis, Mo.

- *Raymond, Percy E., Assistant Curator of Invertebrate Zoölogy, Carnegie Museum, Pittsburgh, Pa.
- *Rea, Paul M., Director, The Charleston Museum, Charleston, S. C.
- Riggs, Elmer Samuel, Assistant Curator of Paleontology, Field Museum of Natural History, Chicago, Ill.
- Robinson, Edward, Assistant Director, Metropolitan Museum of Art, New York, N. Y.
- Rothermel, John G., Superintendent, Wagner Free Institute of Science, Philadelphia, Pa.
- *Rothrock, Boyd P., Curator, Division of Zoölogy, Pennsylvania State Museum, Harrisburg, Pa.
- Rothrock, Mrs. Boyd P., Division of Zoölogy, Pennsylvania State Museum, Harrisburg, Pa.
- Ruthven, A. G., Curator of the Museum, University of Michigan, Ann Arbor, Mich.
- Sage, Cornelia Bently, Assistant Director, Albright Art Gallery, Buffalo, N. Y.
- Santens, Jos. A., Preparator, Taxidermic Laboratory, Carnegie Museum, Pittsburgh, Pa.
- *Santens, Remi H., Preparator, Taxidermic Laboratory, Carnegie Museum, Pittsburgh, Pa.
- Schoff, Wilfred H., Secretary and Assistant Treasurer, The Philadelphia Museums, Philadelphia, Pa.
- *Schuchert, Charles, Curator of Geology, Peabody Museum, Yale University, New Haven, Conn.
- Severence, Frank H., Secretary, Buffalo Historical Society, Buffalo, N. Y.
- Shafer, John A., Custodian of the Museums, New York Botanical Garden, Bronx Park, New York, N. Y.
- *Sherwood, George H., Assistant Secretary and Treasurer, American Museum of Natural History, New York, N. Y.
- *Skiff, Frederick J. V., Director, Field Museum of Natural History, Chicago, Illinois.
- Skinner, Henry, Academy of Natural Sciences, Philadelphia, Pa.
- Small, John K., Head Curator of the Museums and Herbarium, New York Botanical Garden, Bronx Park, New York, N. Y.
- Smith, Frank, Curator, University of Illinois Museum, Urbana, Ill.
- Smith, Lee H., Vice President, Buffalo Society of Natural Sciences, Buffalo, New York.
- *Smith, T. Guilford, President, Buffalo Society of Natural Sciences, Buffalo, N. Y.
- Stevenson, Mrs. Cornelius, Assistant Curator and Lecturer, Pennsylvania Museum and School of Industrial Art, Philadelphia, Pa.
- Stewart, Douglas, Assistant to the Director, Carnegie Museum, Pittsburgh, Pennsylvania.
- *Stone, Witmer, Assistant Curator, Academy of Natural Sciences, Philadelphia, Pa.
- Stotsenberg, J. MacPherson, Curator, Wistar Institute of Anatomy Philadelphia, Pa.

- Strecker, John K., Jr., Baylor University Museum, Waco, Tex.
Swarth, Harry S., Curator of Ornithology, Museum of Vertebrate Zoology,
University of California, Berkeley, Cal.
Toothaker, Charles R., Curator, The Philadelphia Museums, Philadelphia,
Pennsylvania.
*Tower, Ralph W., Curator of Physiology, American Museum of Natural
History, New York, N. Y.
*Townsend, Charles H., Director, New York Aquarium, Battery Park,
New York, N. Y.
*Townsend, Louis H., Osteologist, Carnegie Museum, Pittsburgh, Pa.
Trask, John E. D., Secretary and Manager, Pennsylvania Academy of
Fine Arts, Philadelphia, Pa.
Tuttle, W. F., Administrative Assistant, The Art Institute of Chicago,
Chicago, Ill.
Van Horn, Mary, Acting Librarian, The Art Institute of Chicago, Chicago,
Ill.
Wagenseller, B. Meade, Assistant, Philadelphia Museums, Philadelphia, Pa.
*Ward, Henry L., Director, Public Museum of the City of Milwaukee, Mil-
waukee, Wis.
Weller, Stuart, Curator, Walker Museum, University of Chicago, Chicago,
Illinois.
*Wilcomb, C. P., Curator, Oakland Public Museum, Oakland, Cal.
*Willoughby, Charles C., Assistant Curator, Peabody Museum, Harvard
University, Cambridge, Mass.
*Wilson, W. P., Director, The Philadelphia Museums, Philadelphia, Pa.
*Wissler, Clark, Curator of Anthropology, American Museum of Natural
History, New York, N. Y.
Woodruff, Frank M., Ornithologist, The Chicago Academy of Sciences,
Chicago, Ill.
Worth, William A., Director, Educational Museum, 500 Park Ave., New
York, N. Y.
Zeller, August, Assistant, Department of Fine Arts, Carnegie Institute,
Pittsburgh, Pa.
*Zierden, Alicia M., Curator, Division of Education, Pennsylvania State
Museum, Harrisburg, Pa.

SUSTAINING MEMBERS

- Academy of Natural Sciences of Philadelphia, Philadelphia, Pa.
*American Museum of Natural History, 77th St. and Central Park, West,
New York, N. Y.
*The Art Institute of Chicago, Chicago, Ill.
*Brooklyn Institute Museum, Eastern Parkway, Brooklyn, N. Y.
*Carnegie Museum, Department of The Carnegie Institute, Pittsburgh, Pa.
*The Charleston Museum, Charleston, S. C.
*The Chicago Academy of Sciences, Lincoln Park, Chicago, Ill.
Cincinnati Museum Association, Cincinnati, Ohio.

- *The Corcoran Gallery of Art, Washington, D. C.
 - *The Deseret Museum, Salt Lake City, Utah.
 - Essex Institute, Salem, Mass.
 - *The Fairbanks Museum of Natural Science, St. Johnsbury, Vt.
 - *The Field Museum of Natural History, Chicago, Ill.
 - *Free Museum of Science and Art, Department of Archæology, University of Pennsylvania, Philadelphia, Pa.
 - *John Herron Art Institute, Indianapolis, Ind.
 - *Metropolitan Museum of Art, New York, N. Y.
 - Museo Nacional de Bogota, Bogota, Columbia.
 - Museum of the College of Liberal Arts, Northwestern University, Evanston, Ill.
 - *Museum of Fine Arts, Boston, Mass.
 - *New York Botanical Garden, Bronx Park, N. Y.
 - *New York State Museum, Albany, N. Y.
 - Peabody Museum, Salem, Mass.
 - *Pennsylvania Museum and School of Industrial Art, Memorial Hall, Fairmount Park, Philadelphia, Pa.
 - The Philadelphia Museums, 34th St., below Spruce, Philadelphia, Pa.
 - *Public Museum of the City of Milwaukee, Milwaukee, Wis.
 - St. Louis Museum of Fine Arts, St. Louis, Mo.
 - Syracuse Museum of Fine Arts, Syracuse, N. Y.
 - University of Nebraska, Lincoln, Neb.
 - Wadsworth Athenæum, Hartford, Conn.
 - Walker Museum, University of Chicago, Chicago, Ill.
 - *Washington State Art Association, Seattle, Wash.
 - *Williams College Library, Williamstown, Mass.
-

NECROLOGY

GEORGE CORLISS

Member of the American Association of Museums since 1908. Assistant to the director of the Art Institute of Chicago, Illinois. For many years an officer of the Pennsylvania Academy of Fine Arts. Actively associated with the preparation of art exhibits in the Columbian Exposition in Chicago, and the Louisiana Purchase Exposition in St. Louis.

Born in Philadelphia, Pennsylvania, in 1839. Died in Chicago, Illinois, September 4, 1908.

CHARLES M. KURTZ, A.M., Ph.D.

Charter member of the American Association of Museums. Director of the Buffalo Academy of Fine Arts. For many years actively associated with journals and expositions of fine arts. Awarded diploma and medal by the Trans-Mississippi International Exposition of 1898, and gold medal of the St. Louis Exposition in recognition of services. Appointed an officer of the Order of Merit by Prince Ferdinand of Bulgaria, in 1905. Member of many societies devoted to fine arts.

Born in Newcastle, Pennsylvania, March 20, 1855. Died in Buffalo, New York, March 21, 1909.

OTIS TUFTON MASON, Ph.D., LL.D.

Charter member of the American Association of Museums. Head curator of ethnology in the United States National Museum, Washington. Honorary and corresponding member of many American and European scientific societies. Author of numerous books and papers on ethnology.

Born in Easton, Maine, April 10, 1838. Died November 5, 1908.

CHARLES CHAUNCEY MELLOR

Charter member of the American Association of Museums. Member of the Board of Trustees of the Carnegie Institute of Pittsburgh, Pennsylvania, and chairman of the committee on the Museum. Member of many societies of art and science.

Born in Pittsburgh, Pennsylvania, September 26, 1836. Died April 2, 1909.

INDEX.

- American Museum of Natural History, 79
 Amherst College, Museum of, 16
Anihrenus musaëtorum, 51; *A. scrophularia*, 49; *A. verbasci*, 50
 Archaeological Atlas of Ohio, Paper by William C. Mills, 120
 Art, Free, Committee on, continued, 9; Museums of, and the Conservation of Monuments, Paper by B. I. Gilman, 87; Art Museums, Desirable Projection of, as Suggested by the Desirable classification of Art Libraries, Paper by W. H. Goodyear, 93
Attagenus piceus, 47, 48
 Attendance, Roll of, 1
 Auditing Committee, 9, 71
Auloceros elegans, 54
 Baker, F. C., Paper on "Suggestions for an Educational Exhibit of Mollusks," 56; Paper on "Exhibition Cases Without Shelves," 128; Remarks by, 60, 78, 82, 121, 128, 132, 133
 Barber, Edwin A., Paper on "The Need of Coöperation Among Museums," 20
 Beetle, Black Carpet, 47, 48; Cabinet, 50; Carpet, 49; Cigarette, 34, 53, 54; Drug-store, 52, 53; Larder, 46, 47; Museum, 51; Slosson's Cabinet, 51; Spider, 52
 Blackman, E. E., Paper on "Some New Points in Coin Case Construction," 134
Blatella germanica, 39
 Book Louse, 37, 38
 British Guiana Expedition of Indiana University and the Carnegie Museum, Paper by C. H. Eigenmann, 54
 Brues, C. T., Paper on "The Insect Pests of Museums," 33
 Buffalo Society of Natural Sciences, Educational Work of, in Coöperation with the Public Schools, Paper by H. R. Howland, 74; Invitation to meet at, 146
 Bumpus, H. C., Paper on "New Methods of Making Relief Maps and Plaster Casts," 32; Demonstration by, 55; Remarks by, 60, 79
 Carnegie Foundation, Committee on, discharged, 9
 Carnegie Museum, Survey by, 12; British Guiana Expedition of, 54
 Children's Museum, its Methods of Work and its Results, Paper by Anna B. Gallup, 54
 Cockroaches, 38, 39, 40
 Coin Case Construction, Some New Points in, Paper by E. E. Blackman, 134
 Coins, Historical, Uses of a Collection of, Paper by T. L. Comperette, 138
 College Museums, Coöperation Among, Paper by D. S. Martin, 14
 Commerce, History of, in Museums, Paper by W. H. Schoff, 64

- Committee, Auditing, 9, 71; on Free Art, continued, 9; on 2d Class Postal Rates, continued, 9; to Secure Benefits of Carnegie Foundation, discharged, 9
- Compurette, T. Louis, Paper on "The Uses of a Collection of Historical Coins," 138
- Constitution of the American Association of Museums, 148
- Corliss, George, Notice of death, 7
- Covert, Adolphe B., Paper on "Use of Unkerheimer's Solution for the Preservation of Natural Foliage," 54
- Crook, A. R., Paper on "A Survey of State Natural History Museums," 141; Remarks by, 29, 63, 133
- Cummings, Carlos E., Demonstration by, 119
- Curators, Training of, 115, 119
- Dermestes lardarius*, 46, 47
- Directory of Museums, 8, 146
- Dow, G. F., Remarks by, 92, 145
- Dromatherium sylvestre*, 19
- Educational Work, of the Buffalo Society of Natural Sciences, 74; of the Philadelphia Museums, 60
- Eigenmann, C. H., Paper on "The British Guiana Expedition of Indiana University and the Carnegie Museum," 54
- Exchanges between Museums, 13
- Exhibition Cases without Shelves, Paper by F. C. Baker, 128
- Exhibits, Arrangement of, 139; Commercial, 66; Fadable Minerals, 130; Mollusks, 56; Temporary, 79; Tuberculosis, 79
- Experts, Employment of, 13, 21
- Farrington, O. C., Paper on "A Device for Exhibiting Fadable Minerals," 130; Remarks by, 20, 93, 121, 132, 133
- Foliage, Preservation of, 54
- French, W. M. R., Paper on "The Planning and Fitting of Exhibition Rooms, Especially Picture Galleries," 84; Remarks by, 55, 80, 87
- Gallup, Anna B., Paper on "The Children's Museum, its Methods of Work and its Results," 54
- Gilman, Benjamin Ives, Paper on "Museums of Art and the Conservation of Monuments," 87
- Goodyear, W. H., Paper on "The Desirable Projection of Art Museums as Suggested by the Desirable Classification of Art Libraries," 93
- Greenman, M. J., Demonstration, by, 83
- Griffin, Delia I., Remarks by, 81
- Holland, W. J., Paper on "Coöperation Between Museums," 9; Remarks by, 8, 9, 30, 55, 64, 82, 121, 127, 132, 133, 145
- Howland, H. R., Paper on "The Educational Work of the Buffalo Society of Natural Sciences in Coöperation with the Public Schools," 74; Remarks by, 145
- Ignotus ænigmaticus*, 51
- Incorporation of Association, Advisability of, discussion, 133
- Indiana University, British Guiana Expedition of, 54
- Insect Pests of Museums, Paper by C. T. Brues, 33
- Invertebrate Models and Exhibition Groups, Paper by Roy W. Miner, 54
- Kent, Henry W., Remarks by, 80
- Kurtz, Charles M., Notice of death, 7

- Lantern Slides, Demonstration by
C. E. Cummings, 119
- Lasioderma serricorne*, 34, 53, 54
- Lepisma saccharina*, 36, 37
- Libraries, Art, Classification of,
93
- Library, Adaptation of, to a Com-
mercial and Economic Museum,
Paper by J. J. Macfarlane, 67
- Lucas, F. A., Response to Address
of Welcome, 6; Demonstration
by, 30; Remarks by, 19, 59, 92,
132
- Macfarlane, J. J., Paper on "The
Adaptation of a Library to a
Commercial and Economic Mu-
seum," 67
- Maisch, Fred D., Paper on "Pho-
tographic Enlarging Methods,"
72
- Martin, D. S., Paper on "Coöper-
ation Among College Museums,"
14; Remarks by, 140
- Mason, Otis Tufton, Notice of
death, 7
- Mellor, Charles Chauncey, Notice
of death, 7
- Members, In Attendance at Phila-
delphia Meeting, 1; New, 4;
Death of, 7, 8; Active, 152;
Life, 152; Sustaining, 159;
Conditions of becoming, 148;
Charter, 152
- Miller, L. W., Remarks by, 93
- Mills, William C., Paper on "The
Archæological Atlas of Ohio,"
120; Remarks by, 121
- Miner, Roy W., Paper on "Inver-
tebrate Models and Exhibition
Groups," 54
- Minerals, Fadable, Device for
Exhibiting, Paper by O. C.
Farrington, 130
- Mollusks, Suggestions for an Edu-
cational Exhibit of, Paper by
F. C. Baker, 56
- Morse, E. S., Remarks by, 59, 130
- Morse, S. R., Remarks by, 82
- Moth, Case-making Clothes, 43;
Clothes, 41; Southern Clothes,
44; Tapestry, 45
- Museums, Adaptation of a Library
to, 67; Amherst College, 16; Co-
operation of, 9, 14, 20; Desirable
Projection of Art, 93; Directory
of, 8, 146; Exchanges between,
13; Exhibits in, 66, 79, 139; His-
tory of Commerce in, 64; Insect
Pests of, 33; Lectures, 61; Penn-
sylvania, 21; Problems of Mod-
ernizing, 122; Staten Island,
25; Surveys of, 11, 12, 141; Work
of, 54, 60, 74, 87
- Necrology, 7, 8, 161
- Officers of the American Associa-
tion of Museums, v; Officers
elected, 83
- Ohio, Archæological Atlas of,
Paper by William C. Mills, 120
- Pennsylvania Museum, 21, 31
- Periplaneta* sp., 39; *P. americana*,
39; *P. australasiae*, 38; *P. orien-
talis*, 40
- Philadelphia Museums, Educa-
tional Work of, Paper by C. R.
Toothaker, 60; Commercial Ex-
hibits, 66
- Photographic Enlarging Methods,
Paper by Fred D. Maisch, 72
- Picture Galleries, Planning and
Fitting of, Paper by W. M. R.
French, 84
- Plaster Casts, New Methods of
making, 32
- Pollard, C. L., Paper on "The
Staten Island Museum," 25
- Postal Rates, Committee on, con-
tinued, 9
- Ptinus brunneus*, 52; *fur*, 52
- Rathmann, C. G., Remarks by,
63, 78, 82

- Rea, P. M., Remarks by, 19, 60, 92, 132, 145
- Relief Maps and Plaster Casts, New Methods of Making, Paper by H. C. Bumpus, 32
- Reports of Committees, 9; of Auditing, 71; of Secretary, 7; of Treasurer, 9, 150
- Resolutions Adopted, 8, 146, 147
- Reyburn, Hon. John E., Address of Welcome, 6
- Schoff, W. H., Paper on "The History of Commerce in Museums," 64
- Search, Theodore C., Address of Welcome, 30
- Secretary, Report of, 7
- Silver Fish, 36, 37
- Sitodrepa panicea*, 52, 53
- Skinner, Henry, Remarks by, 127, 128
- State Natural History Museums, Survey of, Paper by A. R. Crook, 141
- Staten Island Museum, Paper by C. L. Pollard, 25
- Stevenson, Mrs. Cornelius, Paper on "The Training of Curators," 115
- Stone, Witmer, Paper on "Problems of Modernizing an Old Museum," 122
- Talmage, J. E., Paper on "Popular Versus Scientific Arrangement of Museum Exhibits," 139; Remarks by, 133, 145; Resolution by, 8
- Termes flavipes*, 39, 42
- Termite, Northern, 39
- Thelydrias contractus*, 51
- Tinea pellionella*, 43, 44
- Tineola biselliella*, 44
- Toothaker, C. R., Paper on "Educational Work of the Philadelphia Museums," 60; Remarks by, 20, 63
- Townsend, C. H., Demonstration by, 56
- Training of Curators, Paper by Mrs. Cornelius Stevenson, 115
- Trask, John E. D., Address of Welcome, 3
- Treasurer, Report of, 9, 150
- Tricophaga tapetzella*, 45
- Troctes divinatoria*, 37, 38
- Type Specimens, 19
- Unkerheimer's Solution, Use of, for the Preservation of Natural Foliage, Paper by Adolphe B. Covert, 54
- Whitlock, H. P., Remarks by, 20
- Wilson, W. P., Remarks by, 63, 70, 132, 144, 145
- Zierden, Alicia M., Remarks by, 81

21 24
55-44

PROCEEDINGS

of the

American Association of Museums

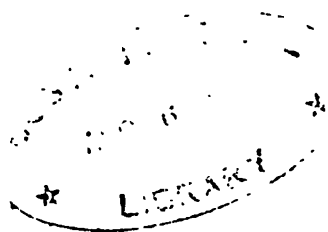
Vol. IV

1910

**PROCEEDINGS
OF THE
AMERICAN ASSOCIATION OF MUSEUMS**

VOL. IV

1910



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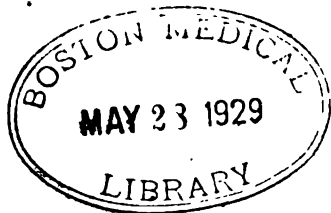
HENRY R. HOWLAND

Buffalo Society of Natural Sciences

CONTENTS

| | PAGE |
|--|------|
| Officers of the American Association of Museums..... | V |
| Session of Tuesday, May 31, Morning | |
| Roll of attendance..... | 1 |
| Report of the Secretary..... | 3 |
| List of new members..... | 6 |
| Gelatine composition in museum groups, by George Shroobree..... | 10 |
| The Shroobree specimen hanger, by Henry L. Ward..... | 13 |
| Exhibition cases without shelves, by E. N. Gueret..... | 16 |
| A method of exhibiting large descriptive labels on the outside of museum cases, by Frank C. Baker..... | 21 |
| Museum coöperation in the Hudson-Fulton Celebration of 1909, by George F. Kunz..... | 24 |
| Session of Tuesday, May 31, Evening | |
| School loan collections as prepared by the Chicago Academy of Sciences, by Frank C. Baker..... | 36 |
| The paleobotanical collections of the New York Botanical Garden, by Arthur Hollick..... | 43 |
| Botanical installation, by Charles F. Millspaugh..... | 52 |
| Session of Wednesday, June 1, Morning | |
| The training of museum curators, by A. R. Crook..... | 59 |
| Historical museums, by Frank H. Severance..... | 64 |
| Session of Wednesday, June 1, Afternoon | |
| A gallery leaflet for art museums, by Louis Earle Rowe..... | 75 |
| The library of the smaller museum, by Elizabeth M. Gardiner..... | 78 |
| Museum registry of local art, by Benj. Ives Gilman..... | 84 |
| Session of Wednesday, June 1, Evening | |
| The value of members to museums, by Newton H. Carpenter..... | 91 |
| Session of Thursday, June 2, Morning | |
| Exhibition of fossils and skeletons in popular museums, by Henry L. Ward..... | 100 |
| Labeling large collections of mammals and birds, by Wilfred H. Osgood..... | 105 |
| The relation of field excursions to the activities of local museums, by Charles C. Adams..... | 112 |
| Organization of new museums of natural history, by Alexander G. Ruthven..... | 124 |

| | PAGE |
|--------------------------|------|
| Appendix | |
| Constitution..... | 128 |
| Report of Treasurer..... | 130 |
| List of members..... | 132 |
| Necrology..... | 141 |
| Index..... | 143 |



PROCEEDINGS
OF THE
Fifth Annual Meeting
OF THE
American Association of Museums

HELD IN BUFFALO, N. Y.

May 31 - June 2, 1910

SESSION OF TUESDAY, MAY 31

Morning

The opening session was called to order in the rooms of the Buffalo Society of Natural Sciences by President Frederic A. Lucas, curator-in-chief of the museums of the Brooklyn Institute of Arts and Sciences. Addresses of welcome were made by Mr. Henry R. Howland, superintendent of the Buffalo Society of Natural Sciences, on behalf of his society, the Albright Art Gallery, and the Buffalo Historical Society; and by Mr. William G. Justice, comptroller of the City of Buffalo, on behalf of His Honor, Mayor Louis P. Fuhrmann, who was unable to be present. The Chair responded to the welcome so cordially extended.

Secretary Paul M. Rea then called the roll and the following is a list of the members present, with the institutions represented by them.

ROLL OF ATTENDANCE

Mr. Thomas L. Austin, Erie Public Museum, Erie, Pa.
Mr. Frank C. Baker, Chicago Academy of Sciences, Chicago, Ill.
Dr. S. A. Barrett, Public Museum of the City of Milwaukee, Milwaukee, Wis.
Mr. Herbert H. Brimley, North Carolina State Museum, Raleigh, N. C.
Mr. William L. Bryant, Buffalo Society of Natural Sciences, Buffalo, N. Y.

- Mr. Newton H. Carpenter, The Art Institute of Chicago, Chicago, Ill.
Dr. John M. Clarke, New York State Museum, Albany, N. Y.
Mrs. Elizabeth D. Courtney, Carnegie Museum, Pittsburgh, Pa.
Dr. A. R. Crook, Illinois State Museum of Natural History, Springfield, Ill.
Dr. Carlos E. Cummings, Buffalo Society of Natural Sciences, Buffalo, N. Y.
Dr. Oliver C. Farrington, Field Museum of Natural History, Chicago, Ill.
Mr. William H. Fox, John Herron Art Institute, Indianapolis, Ind.
Miss Anna Billings Gallup, Children's Museum, Brooklyn Institute of Arts and Sciences, Brooklyn, N. Y.
Miss Elizabeth M. Gardiner, Worcester Art Museum, Worcester, Mass.
Miss Maud J. Gittings, Carnegie Museum, Pittsburgh, Pa.
Dr. Sigmund Graenicher, Public Museum of the City of Milwaukee, Milwaukee, Wisconsin.
Miss Delia Isabel Griffin, The Fairbanks Museum of Natural Science, St. Johnsbury, Vt.
Mr. E. N. Gueret, Field Museum of Natural History, Chicago, Ill.
Mr. George T. Hastings, The Philadelphia Museums, Philadelphia, Pa.
Dr. Arthur Hollick, New York Botanical Garden, New York City.
Mr. Henry R. Howland, Buffalo Society of Natural Sciences, Buffalo, N. Y.
Mr. William J. Hyett, Carnegie Institute, Pittsburgh, Pa.
Dr. Frederic A. Lucas, Museums of the Brooklyn Institute of Arts and Sciences, Brooklyn, N. Y.
Prof. William C. Mills, Ohio State Archeological and Historical Society, Columbus, Ohio.
Dr. Charles F. Millspaugh, Field Museum of Natural History, Chicago, Ill.
Mrs. Charles F. Millspaugh, Chicago, Ill.
Mr. E. L. Morris, Brooklyn Institute Museum, Brooklyn, N. Y.
Prof. Edward S. Morse, Peabody Museum, Salem, Mass.
Dr. Arnold E. Ortmann, Carnegie Museum, Pittsburgh, Pa.
Mr. Wilfred H. Osgood, Field Museum of Natural History, Chicago, Ill.
Mr. Olaf A. Peterson, Carnegie Museum, Pittsburgh, Pa.
Mr. Charles Louis Pollard, Staten Island Association of Arts and Sciences, New Brighton, N. Y.
Mr. Sydney Prentice, Carnegie Museum, Pittsburgh, Pa.
Mr. Paul M. Rea, The Charleston Museum, Charleston, S. C.
Mr. Ottomar Reinecke, Buffalo Society of Natural Sciences, Buffalo, N. Y.
Mr. Boyd P. Rothrock, Pennsylvania State Museum, Harrisburg, Pa.
Mrs. Boyd P. Rothrock, Pennsylvania State Museum, Harrisburg, Pa.
Mr. Louis Earle Rowe, Museum of Fine Arts, Boston, Mass.
Miss Cornelia B. Sage, Albright Art Gallery, Buffalo, N. Y.
Mr. Joseph A. Santens, Carnegie Museum, Pittsburgh, Pa.
Mr. Herbert E. Sargent, Kent Scientific Museum, Grand Rapids, Mich.
Mr. Frank H. Severance, Buffalo Historical Society, Buffalo, N. Y.
Mr. S. C. Simms, Field Museum of Natural History, Chicago, Ill.
Hon. T. Guilford Smith, Buffalo Society of Natural Sciences, Buffalo, N. Y.
Mrs. George W. Stevens, Toledo Museum of Art, Toledo, Ohio.
Mr. Douglas Stewart, Carnegie Museum, Pittsburgh, Pa.
Dr. James E. Talmage, Deseret Museum, Salt Lake City, Utah.

Mr. Charles R. Toothaker, The Philadelphia Museums, Philadelphia, Pa.
Mr. Henry L. Ward, Public Museum of the City of Milwaukee, Milwaukee, Wis.
Dr. W. P. Wilson, The Philadelphia Museums, Philadelphia, Pa.
Miss Alicia M. Zierden, Pennsylvania State Museum, Harrisburg, Pa.

The report of the Secretary was then presented as follows:

REPORT OF THE SECRETARY

Since the great extension of the work of the Association in the past year has made it necessary that action be taken at this meeting to determine our future policy and to provide for its execution, your Secretary desires to present a more extended report upon the work of his office than has been necessary in the past.

The *Proceedings* of the Philadelphia meeting have been edited and published as usual.

The routine correspondence of the Secretary has approximately doubled in each year since the organization of the Association, as shown by the following enumeration of personal letters written each year:

1906-7, 44; 1907-8, 100; 1908-9, 204; 1909-10, 405.

In addition to the routine correspondence there has been during the past year a large amount of special correspondence occasioned by the preparation of the Directory of American Museums. The desirability of the publication of such a directory was set forth by the Secretary at the Chicago meeting, and after extended discussion he was authorized to undertake the collection of information for this purpose. Subsequent to the Chicago meeting the Buffalo Society of Natural Sciences generously offered to publish the Directory for the Association.

At the Philadelphia meeting the Secretary reported that requests for information had been sent to about 640 museums and that replies had been received from 117. At this time the Council arranged the details of publication with Mr. Henry R. Howland, superintendent of the Buffalo Society, but no definite arrangement was made for defraying the cost of compiling the Directory. In August, 1909, the Secretary corresponded with members of the Council regarding the employment of the necessary assistance for the prosecution of the work. As a result of unavoidable delays in correspondence it became evident that formal action could not be obtained in time to avoid serious delay, and the Secretary therefore personally assumed the responsibility

of employing assistance, with the approval of the President and the Treasurer. Further expenditures were later authorized by these officers, and have now been approved by the Council.

It was originally planned to publish the Directory in time for the Buffalo meeting, but delays in the return of information from important museums necessitated postponement. The manuscript is now in the hands of the printers and will be published in the fall.

One of the most striking features of the work of compiling the Directory has been the difficulty of securing replies from many museums, six or seven communications having been sent to some institutions before information could be obtained—or in some cases to elicit the fact that no museum is maintained. The following table summarizes the number of communications which have been mailed in the compilation of the Directory:

| | |
|--|-------------|
| Forms for return of information | 741 |
| Duplicate forms sent to institutions which claimed to have lost or never received the first | 179 |
| Personal letters | 197 |
| Follow-up forms (5 kinds) | 888 |
| Form letters to new museums | 97 |
| Manuscripts prepared and sent for revision | 527 |
| | <hr/> |
| Less number sent out last year | 2629 640 |
| | <hr/> |
| Total number of pieces of Directory mail | 1989 |
| Number of routine pieces of Association mail | 1018 |
| | <hr/> |
| Total number of pieces of mail sent in 1909-10 | 3007 |

The above table shows that 2629 communications have been mailed to a total of 838 institutions, including 197 personal letters and 527 manuscripts which have been prepared and forwarded for revision. The total number of pieces of mail which have originated in the office of the Secretary on both Directory and routine business is 3007, including 602 personal letters.

One of the important purposes for which the compilation of the Directory was undertaken was that the information secured in regard to the number, character, condition, and needs of American museums might be the basis for determining the future policy of this Association. To this end attention may be profitably directed to the following analysis of the Directory returns.

American museums may be divided according to the nature of their collections into four classes: art museums, historical museums, science museums, and special museums (e.g. medical museums). The membership of the Association is at present mainly derived from the science museums, with an inadequate representation of art museums and almost nothing from historical and special museums. If this Association is to represent all classes of American museums it is imperative that serious effort be made to acquaint ourselves with the reasons for their present unequal representation in our membership. To this end a special round-table discussion of museums of history has been appointed for a later session of this meeting.

One of the chief aims of our Association since its organization has been the collection of information regarding various matters of museum practice, and it may safely be said that the time has come when a certain amount of standardization of the principles of museum organization and practice is necessary to avoid unprofitable waste of energy in duplication of experiments. This is the proper work of our Association, and the Directory furnishes a basis for many such investigations. Among subjects of this character which may be studied with advantage may be mentioned the financial support of museums. A careful analysis of this subject would be useful to all museum administrators. Other subjects are suggested by the program of this meeting, and their discussion in our meetings is most helpful, but it fails of the best results when the suggestions made cannot be followed up by a permanent organization representing the Association.

To enable the Secretary to carry on the growing correspondence, to increase the membership, and to investigate subjects calculated to promote the welfare of museums, in addition to editing and publishing the *Proceedings*, a reorganization of our finances to provide for permanent assistance is necessary. The report of the Treasurer shows that the expense of compiling the Directory has exhausted nearly all the surplus in our treasury.

The publication of the *Proceedings* and other routine expenses absorb about all the present income of the Association. To provide permanent assistance to the Secretary requires that the present income of the Association be nearly doubled. It is confidently believed that this amount will ultimately be covered by increases in membership and sale of *Proceedings*, but in the meantime some more definite arrangement must be made, and this is a matter for action by the Council.

Our affairs seem to have come to a parting of the ways, where we must either enlarge or contract the sphere of our activity. The latter course would seem to imply that we have attained our maximum development—an admission which it is safe to say would not express the feeling of the Association.

The Association has received since the last meeting 32 Active Members, 4 Active Members for Life, and 3 Sustaining Members. The list of new members is as follows:

NEW MEMBERS

Life Members

- Mr. F. P. Graves, Graves Private Museum, Doe Run, Mo.
 Mr. James C. Parrish, Southampton Art Museum, Southampton, Long Island.
 Mr. Samuel L. Parrish, Southampton Art Museum, Southampton, Long Island.
 Mr. John E. Thayer, Director, Thayer Museum, Lancaster, Mass.

Active Members

- Mr. Thomas W. Adickes, Assistant Curator, North Carolina State Museum, Raleigh, N. C.
 Dr. S. A. Barrett, Curator of Anthropology, Public Museum of the City of Milwaukee, Milwaukee, Wis.
 Mr. Clarence L. Brock, Director, Houston Museum and Scientific Society, Houston, Texas.
 Mr. Charles E. Brown, Chief, State Historical Museum of Wisconsin, Madison, Wisconsin.
 Mr. William L. Bryant, Custodian of Museum, Buffalo Society of Natural Sciences, Buffalo, N. Y.
 Mr. Willis O. Chapin, President, Buffalo Fine Arts Academy, Buffalo, N. Y.
 Mr. Herbert Clowes, Landscape Modeler, Public Museum of the City of Milwaukee, Milwaukee, Wis.
 Mrs. Elizabeth D. Courtney, Assistant, Carnegie Museum, Pittsburgh, Pa.
 Mr. John Cotton Dana, Secretary, Newark Museum Association, Newark, N. J.
 Miss Elizabeth M. Gardiner, Assistant to the Director, Worcester Art Museum, Worcester, Mass.
 Miss Maud J. Gittings, Custodian of Library, Carnegie Museum, Pittsburgh, Pa.
 Dr. Sigmund Graenicher, Curator of Invertebrate Zoölogy, Public Museum of the City of Milwaukee, Milwaukee, Wis.
 Mr. William G. Justice, Buffalo Historical Society, Buffalo, N. Y.
 Mr. Edwin R. Kalmbach, Assistant, Division of Economic Investigations, Biological Survey, Washington, D. C.
 Prof. William Libbey, Director, Edward Marquand Museum, Princeton, N. J.
 Miss Caroline M. McIlvaine, Librarian, Chicago Historical Society, Chicago, Ill.
 Mr. A. W. Miller, Curator, Oregon Academy of Sciences, Portland, Ore.

- Mrs. Charles F. Millsbaugh, Springfield, Ill.
Mr. Thomas L. Montgomery, Director, Pennsylvania State Museum, Harrisburg, Pennsylvania.
Mr. Wilfred H. Osgood, Assistant Curator of Mammalogy and Ornithology, Field Museum of Natural History, Chicago, Ill.
Mr. Edward K. Parkinson, Director, Albany Institute, Albany, N. Y.
Dr. Henry A. Pilsbry, Curator, Academy of Natural Sciences, Philadelphia, Pa.
Mr. Ottomar Reinecke, Buffalo Society of Natural Sciences, Buffalo, N. Y.
Prof. William North Rice, Wesleyan University Museum, Middletown, Conn.
Mr. Louis Earle Rowe, Docent, Museum of Fine Arts, Boston, Mass.
Mr. Herbert E. Sargent, Director, Kent Scientific Museum, Grand Rapids, Mich.
Mr. George Shrosbree, Chief Taxidermist, Public Museum of the City of Milwaukee, Milwaukee, Wis.
Mr. S. C. Simms, Assistant Curator of Anthropology, Field Museum of Natural History, Chicago, Ill.
Mrs. George W. Stevens, Assistant to Director, Toledo Museum of Art, Toledo, Ohio.
Dr. Arthur Sweeney, Secretary, St. Paul Institute, St. Paul, Minn.
Dr. Max Uhle, Director, Museo de Historia Nacional, Lima, Peru.
Mr. Francis E. Whitmore, Curator, Higgins Museum, Cortland, N. Y.
Mr. Charles R. Wilson, Vice-President, Buffalo Historical Society, Buffalo, N. Y.
Prof. P. C. Wilson, President, Board of Trustees, Chattanooga Museum, Chattanooga, Tenn.
Mrs. A. A. Wright, Custodian, Olney Art Collection, Oberlin College, Oberlin, Ohio.

Sustaining Members

- Boston Society of Natural History, Boston, Mass.
Colorado Museum of Natural History, Denver, Col.
Pennsylvania State Museum, Harrisburg, Pa.

The Secretary regrets to announce that he was advised yesterday of the death in Mont Clair, N. J., on May 5, 1910, of George F. Comfort, director of the Syracuse Museum of Fine Arts, Syracuse, N. Y., and an Active Member of this Association.

Respectfully submitted,

PAUL M. REA, *Secretary.*

On motion the report of the Secretary was accepted. The reading of the report of the Treasurer was postponed until the next session. In the absence of Messrs. French and Dorsey, chairmen respectively of the committee on free art and the committee on postal rates, reports of these committees were not presented.

The Chair called for new business and the Secretary presented recommendations of the Council as follows:

Secretary Rea.—"Mr. President: At a meeting of the Council of the Association held last evening it was voted to recommend that the dues of Active Members be increased from two dollars to three dollars and that the dues of Associate Members be decreased from five dollars to one dollar and that such Associate Members shall have no vote and shall not receive the publications of the Association by right.

"I might comment upon this last matter by saying that we had originally a class of Associate Members who were to pay five dollars a year. I think this was intended for various friends of the institutions where we might be meeting who would like to attend the meeting and pay a high price for the privilege. We have never had an application for that class of membership. (*Laughter.*) On the other hand, there have come before us a number of applications for membership from persons who are not strictly eligible for Active Membership, that is, who are not actively engaged in museum work, but who are nevertheless interested in museum work, and while perhaps not in a position to pay five dollars, would be very glad indeed to pay one dollar for the privilege of the meetings. These persons do not always care to receive the publications of the Association, and would not necessarily care for a vote on business matters. It is on this account that the Council recommends a reduction of the dues of this class of members from five dollars to one dollar."

President Lucas.—"These two matters of new business are in the way of amendments to the Constitution. There is no definite provision made in the Constitution for submitting amendments, so they could be taken up at any time, as the Association might deem best.

"The question of increased dues was very carefully considered by the Council. When the Association was founded the dues were put at a minimum amount. The wish was to have them as light as possible compatible with the carrying on of the necessary business of the Association. The business has grown largely, thanks to the energy of our very efficient secretary, and I think that an increase of the dues to three dollars would not be seriously felt, and would not decrease our membership. We wish to do all we can, not merely to keep, but to increase the membership."

Prof. Edward S. Morse (Peabody Museum, Salem).—"Members should clearly understand that we need money. The work has increased so extensively that a paid assistant is required. It is utterly impossible for the Secretary, who has been promoter, encourager, stimulator,

and garnerer-in of members, to give fifty per cent of his time, when it should be devoted to his own museum at Charleston. Therefore matters have come to a point where it is absolutely necessary that we have a paid assistant, and to do that we must have more money. While we are called upon for the support of many societies and an increase of our dues to five dollars might therefore be questionable, I am sure that we all have this particular work so much at heart that no member will object to an increase of one dollar, and I believe it should be made now."

Secretary Rea.—"As the unfortunate cause of this recommendation of the Council, I may perhaps be permitted to say a word, Mr. President. The fact is simply that we need the money, but there are various ways in which we may hope to get it. One which ought to produce a considerable amount is by increasing the number of active members, of active members for life, and especially of sustaining members. We all come in contact with museum people and if those who attend this meeting are in sympathy with the present prospects of our work I think we can go out and get more members. If we are to be an association of American museums let us try to be a representative one. The dues are small and, while there are many other associations, people who make museum work their business ought to belong to this Association.

"With regard to sustaining members, I feel sure that there are many institutions in this country which would willingly associate themselves with this movement if it were properly presented to them. I find that when I have an opportunity of presenting the subject, I usually meet with a favorable response. If we can get a number of sustaining members we shall have less need for other sources of income. An increase of a dollar a year in the dues of active members will not bring us more than \$250. Twenty-five sustaining members would give us the same amount; and before taking action, I would request the members of the Association to consider what other means there may be of raising funds—especially what we may do to increase our membership, and particularly the class of sustaining members."

On motion of Dr. Arthur Hollick it was voted that action on these amendments to the Constitution be taken on the following morning.

President Lucas.—"If there is no other new business to come before the Association we will proceed to the first paper for this morning."

The following paper by Mr. George Shrosbree, chief taxidermist, Public Museum of the City of Milwaukee, was then read by Mr. Henry L. Ward:

GELATINE COMPOSITION IN MUSEUM GROUPS

The introduction of groups in the museums of America brought many perplexing problems for ambitious taxidermists to solve, calling for originality of methods to imitate the various natural conditions on land, water, marshes, etc., besides a considerable amount of mechanical ingenuity in the creation of optical illusions and in the general construction.

I have seen many very good representations of still water made by various kinds of glass, celluloid, etc., but whenever a bird or mammal has been placed in the act of swimming, the effect has never been satisfactory to me. The ripples and the swirl were needed to complete the effect.

Upon my appointment as taxidermist at the Milwaukee Public Museum a little more than eleven years ago one of my first pieces of work was to mount a group of beavers. It seemed absolutely necessary to me that one specimen at least should be placed in the act of swimming; but how about the swirl? I could not bring myself to feel that I would be satisfied unless I could create one. I decided to try a gelatine composition as an experiment, and the result exceeded my expectations. It has stood the test of more than ten years, and is just as good at the present time as on the day the group was finished. Another group of nesting marsh birds, six by sixteen feet, mounted by the same process during the year 1906, has proved equally satisfactory. Still another use to which I have applied the gelatine composition with very good results has been the preservation of pine needles on the stems, since it has the advantage of holding the needles firmly to the stem in their natural condition.

I will here describe my methods of construction and also the formula of the composition, hoping that some of my fellow-workers in the "mysteries of taxidermy" may find something of interest to them.

My method of treating pine and other evergreens has been to dip them while fresh into a solution of equal parts of glycerin and warm water, to which a few drops of carbolic acid have been added, and allow it to drain off for a few hours; then apply the composition, which must be thinned down somewhat, to the base of the needles with a brush and support it in its natural position of growth until dry.

Beaver swimming. Follow contour of head and upper part of the body at the water level, and cut a hole in a board to that shape. Nail it to a table or other flat surface, and model the water in clay, showing the ripples and swirls. Give the clay a thin coating of lard oil, using a soft brush. Now make a mold in the usual manner, using a fine grade of plaster for the surface, and a coarse grade with fiber worked into it for the purpose of strengthening. When the mold is thoroughly dry, carefully smooth the surface, and prime it with two or three coats of thick brown shellac. When the shellac is dry the mold is ready for the composition to be poured into it. A piece of glass having been previously prepared by having a hole cut to the contour of the head is placed in position and the composition cast of water is added as soon as it can be conveniently handled. It will look somewhat cloudy until the moisture has thoroughly dried out, when it will clear. Before closing the case apply a thin coat of coach varnish, which will make the composition quite transparent.

Marsh group. The construction of a marsh group, which at first looks very complicated, is in reality comparatively simple after the necessary mechanical schemes have been figured out. If there are to be clumps of cat-tails or wild rice, pieces of seven-eighths inch pine should be cut to the proper shape and holes drilled for the wires which will support the plants. If natural cat-tails are to be used it is only necessary to employ wires a few inches long and to glue the cat-tails to them. If gathered in September these will dry in good condition; they are then ironed under a damp cloth and painted. The best effect is produced by drawing them between the thumb and forefinger, letting the paint run off at the top. When thoroughly dry they should be given a coat of coach varnish thinned with turpentine containing wax. This will give a natural finish and will preserve the paint. These sections are now ready to be placed in position in the case at the desired water level. Pieces of glass should then be cut in irregular shapes to fill the spaces between the boards which carry the rushes. These may be supported where necessary by wooden blocks concealed by clumps of rushes. A few holes should be drilled in the glass to allow single rushes to rise through the water. If a nest of a grebe is to be used a part should be placed on the glass and the remainder under it. I have produced the effect of weeds growing on the bottom by the use of loose oakum and other fibrous material painted green and pulled out while the paint was still wet. A few dead rushes may be mixed with it to good advantage. Painted oakum should be

placed under the edges of each section supporting clumps of rushes and around any wooden supports used in the construction of the group.

In assembling the group the wooden sections carrying the rushes are first placed in position, then the sections of glass at the back of the case, finishing the vegetation of each section before beginning another. By this arrangement the taxidermist is able to reach all parts of the case conveniently and then to step outside and finish it. The joints of the glass are concealed by pasting over them pieces of dead rushes or pond weeds which have been prepared by soaking in glycerin. The water composition is then poured over the entire mass, using a ladle or large spoon. Among the bases of the rushes, on the wooden sections, painted oakum fibers may be used to give the "soggy" appearance seen in an actual marsh. Plenty of broken cat-tails should also be added, and if it is desired to show a bird swimming a section can be prepared as described above for the beaver and placed in position so that the hot composition will adhere to it without showing any joint.

The following directions may be useful for the preparation and use of the water composition:

Formula for Water Composition

| | |
|---------------------------|----------|
| Best French gelatine..... | 1 pound |
| Glycerin | 4 ounces |
| Isinglass | 2 ounces |

Add a few drops of crystal carbolic.

Thoroughly soak the gelatin in cold water and boil down; the same with the isinglass, but the isinglass must be strained through some fine fabric before mixing with the gelatin. Then add the glycerin and carbolic.

The composition, when thoroughly dry, should have just sufficient flexibility to cause it to lie perfectly flat on the glass. The quantity of water to be used can be regulated according to circumstances, as in this work a slight shrinkage in thickness does not make any difference.

President Lucas.—"Mr. Shrosbree's paper is now before the Association. The proper representation of water, and especially water in motion, is always a very difficult problem. I have seen the pieces mentioned by Mr. Shrosbree and they are indeed excellent."



SHROSBREE SPECIMEN HANGER

Dr. Charles F. Millspaugh (Field Museum).—"I would like to ask, Mr. President, concerning the general effect of time and light upon the composition."

Mr. Henry L. Ward (Milwaukee Public Museum).—"On that point I can give Dr. Millspaugh no absolutely definite assurance. Mr. Shrosbree has been using this preparation in a number of groups, and all I can say positively is that for some years, I think five or six, it has not materially changed in character. The objects remain flexible and do not shrink to any appreciable extent. How long this state of preservation may continue I do not know. I have supposed that ultimately the glycerin would evaporate. Of course glycerin is an alcohol and is, I presume, volatile, but very slightly so. In taxidermic work we sometimes hear of specimens being mounted as if they were to exist forever. Personally, I am under the impression that very few specimens are going to last forever. In fact it often happens that the specimens we expect to last a very long time, actually last only a short time."

Dr. Millspaugh.—"I will say to Mr. Ward, in explanation of my question, that I was thinking more of the effect on the actual tissue of the leaves. I find that gelatin evaporates very slowly indeed and is perfectly satisfactory in itself, but I was thinking more particularly of the deterioration of the parenchyma of the leaf."

President Lucas.—"The next paper is by Mr. Henry L. Ward, director of the Public Museum of the City of Milwaukee."

Mr. Ward.—"I hoped to have a small exhibit which would place this matter properly before the members of the Association so that its advantages, and any possible disadvantages, could be seen. Some time during the day I hope to have this exhibit unpacked so that any who are especially interested may have an opportunity of seeing it."

THE SHROSBREE SPECIMEN HANGER

Of late there seems to be a rather general desire among museum people to get away from the stiff, linear regularity of shelf exhibits, and take advantage of the greater plasticity of arrangement made possible by direct attachment of individual specimens to the backs of upright cases. In its ultimate analysis this movement reflects an appreciation of the desirability of avoiding severely scientific formality or artificial regularity in public exhibits which, most of us presumably will agree, need thereby lose none of their scientific accuracy, while

well as to secure space for the placement of original labels, supports representing ground or stones are made of moderate depth where they abut against the case.

These hangers may be used for a great variety of purposes; for supporting wooden brackets where the exhibit of a wet preparation in glass is introduced among specimens attached to the back of a case, or even for joining the limbs to the torso in taxidermic work.

The hangers fit so closely into the sockets that they can move only upward so that it is not essential to take into consideration the equilibrium of the object. When the specimen to be hung is very heavy and its support can not be extended far enough below the socket to produce an outward pull upon it, there is some likelihood of the arm which enters the socket being forced into the wood of the back of the case. This may be somewhat guarded against by placing a piece of thin metal the full size of the socket between it and the wood in order to increase the bearing surface.

As a matter of accommodation, the Milwaukee Public Museum is willing to furnish these to other museums at cost of fabrication and handling, which at present prices is estimated at two cents each for socket and hanger of any one of the four sizes.

President Lucas.—"Are there any remarks on Mr. Ward's paper? I may say that this is an invaluable invention for which I have waited many years, and one which we began to use in the Brooklyn Institute Museum as soon as we could obtain it.

"If there are no remarks on Mr. Ward's paper, the next on the program is a paper by Mr. E. N. Gueret, assistant curator, division of osteology, Field Museum of Natural History, Chicago."

EXHIBITION CASES WITHOUT SHELVES

Considerable attention has been given of late to exhibiting natural history objects in cases without the use of shelves. This has been extensively done in the department of anthropology in the Field Museum, much of this material, such as clothing, baskets, spears, and various implements so different in form and size not being well suited to shelves. The minerals in the department of geology, are exhibited without shelves, each mineral being placed on a base which is fastened to the back of the case, and the label placed on the front of this base.

Most of the corals in the department of zoology are also fastened to the backs of the cases, and are installed without the use of shelves.

When objects of different sizes must be installed together in a case, a much more useful, more economical, and a neater arrangement can be made if shelves are not used; but the greatest drawback has been that this plan of installation, as practiced so far, does not permit of an easy method of rearrangement in case additions are to be made.

I wish now to call your attention to a plan which I have devised, which will overcome this objection—one that is flexible and interchangeable and that will permit of rearranging or adding to the collection as desired.

Flat, iron bars $\frac{3}{4}$ " wide and $\frac{1}{4}$ " thick have holes drilled 4" apart and tapped for a no. 14 machine screw. Holes are drilled 1' apart and countersunk for a $1\frac{1}{4}$ " common, flat-headed wood-screw. These bars are screwed horizontally to the backs of the cases from 12" to 18" apart.

The brackets are made of flat, structural steel, $\frac{1}{2}$ " x $\frac{1}{8}$ "; $\frac{3}{8}$ " x $\frac{1}{8}$ "; and $\frac{1}{2}$ " x $\frac{1}{4}$ " respectively. One end is bent at a right angle, making a projection $\frac{1}{4}$ " long, or the thickness of the horizontal bars. A second bend is made at a right angle 2", 6", 9", and 12" from the first and in the opposite direction. This arm is from 6" to 14" in length according to the depth of the case. These brackets fasten to the horizontal plates by a round-headed iron machine screw, the projection on the bracket taking the weight from the screw and also preventing the specimen from turning or overbalancing, the other arm fitting into a socket inserted into the bottom of the base, or screwed to blocks that fit inside of the ledge of the base. By simply loosening and tightening one screw the specimen can be reinstalled in any part of the case. If wanted for examination or class work, it is removed by simply slipping it off the arm of the bracket. Of course the sizes that I have given for the brackets can be changed to meet the requirements of the specimens to be placed on exhibition according to their size, weight, etc.

Where these brackets are to be used in quantity, it probably would be preferable to have them cast, as they undoubtedly could be cast at a comparatively low cost.

Perhaps it is not out of place to mention here the movable screen so extensively used first in the Field Museum by the department of anthropology. These screens were first used for objects with little weight, and when the objects were arranged on the screen it was

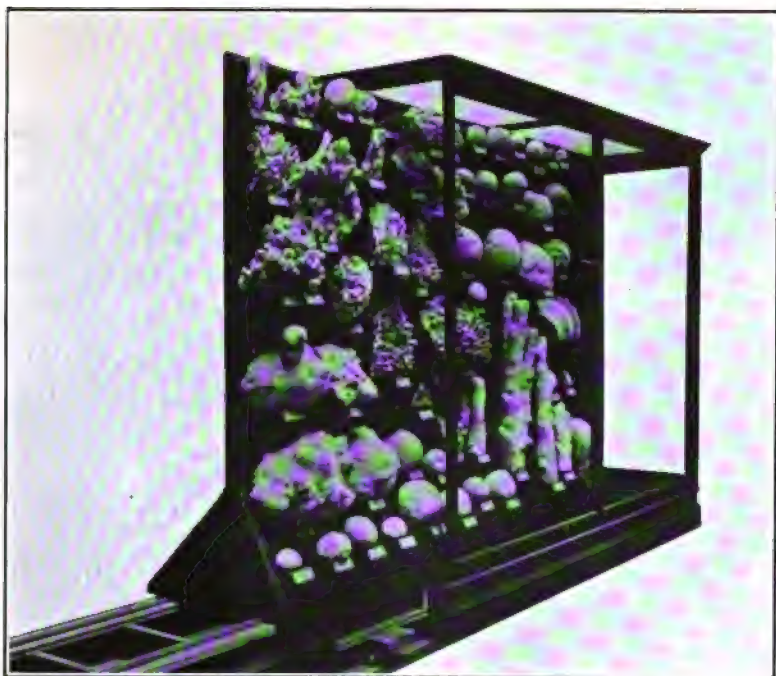
easily placed in the case. About eight or nine years ago the case with a screen was used for the corals. For this installation the screens made were strong and necessarily heavy. The screen was placed on a truck of the height of the base of the case. The iron track on the truck was made to connect with the track in the case, and by this method the screen was easily run into the case. The screen shown in this photograph with its load will weigh nearly a ton, and yet one man can easily take it out of or place it in the case.

The advantages of this use of the screen are as follows:

1. The installation can be done where most convenient, and later taken to and placed in the case.
2. Only the end of the case is removed for installation; doors on the front are not needed.
3. Since the base of the case supports all material put in it, the framework of the case need not be so heavy.
4. A case without doors is more easily made dust-proof.
5. In moving cases from one room to another, the screen with its installation and the case can be moved separately.
6. It is easy to remove the installation in case the glass on the inside needs cleaning.

Mr. Gueret.—"I have a few models and photographs on exhibition if any one is interested."

President Lucas.—"Are there any remarks upon Mr. Gueret's paper? The Chair will be glad to hear discussion. If there be no discussion, I may say that this question of doing away with shelves is one that has been worked out by a number of museum men. In 1903 I had a small exhibit in the children's room in the Smithsonian Institution, and in the same year we installed an exhibit of deep-sea fishes at St. Louis. These are without shelves, as is also a case of fishes including the big ocean sunfish and its relatives, installed by Mr. Palmer in the National Museum. I endeavored to persuade them there to install another set of fishes in this way, but the innovation was a little bit startling, and they were installed in the regular method, on shelves. As soon as I had a museum of my own where I could carry out a few of my pet ideas, I began slowly to reinstall, without shelves, the collection in the Brooklyn Institute Museum, and if, as I hope, we shall have the pleasure of seeing some of our members at Brooklyn, we shall be very glad to show them a number of cases installed in this



CASES IN THE FIELD MUSEUM OF NATURAL HISTORY, CHICAGO, ILL., SHOWING MOVABLE SCREEN DESCRIBED BY MR. GUERET.

way. It is most preferable to other methods as it does away with the stiffness and formality, and permits of grouping with a freedom attained in no other way."

Mr. Herbert E. Sargent (Kent Scientific Museum, Grand Rapids).—"On this subject of shelving, Mr. President, I would like to say just a word touching the experience which has come to us in our little museum at Grand Rapids, where we have been exceedingly hampered for funds. We simply made our shelf, and had some little strips of sheet iron about two and one-half inches long and one and one-half inches wide drilled with two holes, one for screwing on at the back of the shelf, the other for screwing to the back of the case. On very light specimens this strip is bent a little to make friction at the edges where it is screwed to the shelves. For light specimens I would simply fasten the pieces to the shelf and then fasten that to the wall. If it is a heavy specimen I put a support at each end of the shelf. My cases are lined, so that it does not mar the case to change the screws, and it is a very simple matter to change and put a screw in on any half-inch of the case without any formality of lines either way. I find it works with nearly every specimen. If the bottom of the shelf is below the line of vision, my support is put under the shelf where it does not show. If it is above the line of vision, it is put above the shelf and behind the base of the specimen. The specimen is mounted individually upon the shelf and can be taken down freely, without any screwing whatever. This makes it possible to divide the specimens equally over the case.

"I would say that I use a black background, which I very much like, because all colors show well upon black—even black itself—since all the light comes to the eye; and the case is a symmetrical whole, without any large bare spaces and filled spaces from the inequality in the size of the specimens."

Mr. Charles R. Toothaker, curator of the Philadelphia Museums, then demonstrated a new container consisting of glass sides bound at the edges with narrow wooden strips. The discussion proceeded as follows:

Mr. Henry L. Ward (Milwaukee Public Museum).—"I would like to ask Mr. Toothaker whether these containers are prepared to hold liquids."

Mr. Toothaker.—"I have made a few of them with metal edges, and instead of using glue have used other cementing material. It is difficult to make them to hold liquids unless the binding is larger than

looks well. They can be made to hold liquids even in small sizes and with a narrow metal binding, but it is such a difficult piece of work that it is hardly worth while. I think that a flat bottle is the best small container for liquids, but for the larger ones and for the smaller ones not containing liquids, it seems to me that the wooden edges serve very well. I would not recommend the general use of metal edges and other cementing material than glue in the effort to hold liquids."

President Lucas.—"I may say that the papers this morning are interesting as showing how the esthetic side is coming into the question of museum exhibition. Great effort is made not only to have the collections instructive but to have them look well."

Mr. E. N. Gueret (Field Museum).—"What is the cost of these containers by the hundred?"

Mr. Toothaker.—"We have not made them by the hundred. We have made them in special sizes and comparatively few at a time in our own carpenter shop, and we have not kept an accurate account of the cost. I am sure that they are very cheap indeed in comparison with the square glass jar of equal quality."

Mr. Charles Louis Pollard, curator-in-chief of the Staten Island Association of Arts and Sciences, then demonstrated a semi-cylindrical exhibition jar provided with flanges on the flat side for the insertion of opaque backgrounds of any desired color. This jar is designed for use with the semi-cylindrical face toward the front. The discussion of this subject proceeded as follows:

President Lucas.—"I would like to ask Mr. Pollard if this jar could not be reversed. If it were made without any flange and turned with the flat side to the front it would occupy just half the space of a round jar and give absolutely no distortion."

Mr. Pollard.—"There would be no advantage in that for it would have practically the effect of the ordinary rectangular jar."

President Lucas.—"You would have half the contents."

Mr. Pollard.—"Yes, it could be done of course."

Dr. Arnold E. Ortmann (Carnegie Museum).—"Where are they made?"

Mr. Pollard.—"They are manufactured by a European firm and imported by the Kny-Scheerer Company of New York. I know of no other American agents. The price is not especially high in view of the fact that they are an imported product. I am sorry that I am not able to quote exact figures at present, but, in the long run, they are certainly not any more expensive than the ordinary cylindrical jar. The price is higher than that of the square jars."

that it would be much better to utilize the twenty-five or more museums in Greater New York than to erect any new buildings. The plan was carefully considered by the Commission, with the result that two committees were formed; one for historical exhibits and the other for art, at the Metropolitan Museum of Art. Of the twenty-five museums, twenty-two took part. The total expense to the Commission amounted to \$22,000. The result was that the authorities of the museums, as well as those of the Botanical Garden and the Zoological Park, and also the Department of Parks, were induced to further the great exhibits and to make them accessible to all who were in the city, or were likely to visit it during the three months from the end of September to the end of December.

The success was unparalleled and, as a suggestion for other cities, it was thought well to give a summary indication of the exhibits, their locations, the hours of opening, and the moral effect of these displays upon the public. Those who had charge of the special exhibitions of the different museums, institutions, and societies, have kindly communicated many important details as to the space occupied, the number of visitors, etc. In several instances the museums have received immediate encouragement in the form of gifts and donations. They were popularized to a greater extent than ever before, and are better understood by many thousands of citizens who had never been in certain of them before the Hudson-Fulton Celebration occurred.

We have all read of the Indians who were settled on Manhattan Island before the arrival of Henry Hudson, but few realize how many relics of these aborigines have been found here, especially at the upper end of the island. A large and valuable collection of these relics was shown at the American Museum of Natural History, at Central Park West and Seventy-seventh Street. This exhibition, which will be permanent, was opened September 15, a considerable part of the ground floor being devoted to it. It was open on week days from 9 to 5; on Sundays from 1 to 5. Many teachers brought entire classes to see the exhibits which were also made the basis for lectures delivered

issued by the museums and institutions in New York City and vicinity under the auspices of the Hudson-Fulton Celebration Commission. 400 copies issued.

For further descriptions of museums mentioned in this article, see:

REA, PAUL M. Directory of American Museums of Art, History, and Science. *Bull. Buffalo Soc. Nat. Sci.*, vol. x, 1910, pp. 1-360.

under the auspices of the board of education. A classic monograph by Mr. Alanson Skinner, of the department of anthropology in the Museum, describing the Indian relics of the time of the discovery of Manhattan Island, was published for the occasion. It comprises fifty-four pages and is illustrated by twenty figures.

The special exhibit in the rooms of the American Geographical Society, 15 West Eighty-first Street, covered about 1572 square feet. It consisted of rare books, maps, etc., relating to Henry Hudson, Robert Fulton, and their times. These were shown for thirty days, the hours being from 9 to 5. A catalog of forty-one pages was issued, giving a detailed description of the objects and containing five reproductions of the title pages of rare books. This catalog can be had on application to the librarian.

In the Engineering Building, 29 West Thirty-ninth Street, the American Society of Mechanical Engineers exhibited a collection of models of the first vessels to which steam was applied for navigation, and also models of the latest steamships, thus illustrating the immense changes which have taken place in one century. About 700 square feet of floor space was devoted to the exhibition, which lasted from the middle of September to the middle of October, during which time it was open from 9 to 5.30, and was viewed by about 500 persons, all of whom expressed and displayed great interest.

The special exhibition at the Brooklyn Institute, Eastern Parkway, was open from 9 to 6 on week days, from 2 to 6 on Sundays, and on Thursday evenings from 7.30 to 9.30. Here were shown reproductions of the animals of Long Island and implements used by the Long Island Indians. Nearly 2000 square feet of space was occupied by the exhibition and during September and October there were 50,000 visitors. In the Children's Museum a collection was shown covering 150 square feet, and this was visited by 20,000 persons. Much interest in the history of Hudson and Fulton was expressed by all visitors.

In the City History Club, 21 West Forty-fourth Street, a collection of illustrations, photographs, maps, and plans was exhibited during the month of October. It occupied 500 feet of floor space and was seen by over 150 persons, whose attention was directed to the Historical Guide Book of the City of New York published by the Club.

The College of the City of New York, at St. Nicholas Avenue and One Hundred Thirty-eighth Street, exhibited in the historical museum

of the institution, for several weeks, a collection of charts, views, manuscripts, and relics representing Old New York.

At Fraunces Tavern, 54 Pearl Street, erected in 1719, and restored by the Sons of the American Revolution in 1907, Revolutionary relics were shown daily, except Sundays, from 9 to 6. There were about 150 visitors.

The Long Island Historical Society, at the corner of Pierrepont and Clinton Streets, Brooklyn, exhibited a small collection. The location was too remote to attract many visitors, but some 50 persons viewed the exhibition which was open from 8.30 to 6.

In the National Arts Club, on Twentieth Street, near Irving place, where Samuel J. Tilden once resided, could be seen a most original and attractive exhibition entitled "Three Centuries of New York." This occupied some 3800 square feet of floor space and was open for six months between the hours of 10 and 6; it was seen by about 10,000 persons, and was very highly appreciated by the visitors.

The Aquarium Building, in Battery Park, open daily, including Sundays, from 9 to 5, attracted 396,887 visitors during the two weeks of the special exhibition. On September 26 there were 64,795 visitors. The tanks containing fish native to the waters about New York City were appropriately marked, and this served to attract the attention of those present to our resources in this respect.

The exhibition in the New York Botanical Garden, in Bronx Park, continued from the first of September to the middle of December, and extended over 200 acres. The museums were open daily, including Sundays, from 10 to 5, and the conservatories from 10 to 4; the grounds were always open. In the grounds and conservatories were exhibits of plants, shrubs, trees, and natural woodland; in the museums were shown products utilized in the arts, sciences, and industries. All trees growing in the Hudson Valley at the time of Hudson's arrival were marked with the letter "H." A descriptive list of the native trees was prepared for the celebration by Mr. Norman Taylor. There were 150,000 visitors and all showed marked interest in our native trees.

The Department of Parks placed tree-labels on the trees in many parts of Brooklyn and Queens boroughs; an additional sign reading, "This species is a native of the Hudson River Valley," was affixed to specimens of the species indigenous to the Hudson Valley in 1609. In this way millions of casual passers-by were made familiar with the trees of our land.

In the rooms of the New York Genealogical and Biographical Society, 226 West Fifty-eighth Street, there was a special exhibition of old deeds, manuscripts, etc., relating to the history of the United States, up to and including the war of 1812. This was open daily, except Sunday, from 10 to 5, and continued from the latter part of September to the first of November.

In the building of the New York Historical Society, 170 Central Park West, was shown a fine collection of portraits of Robert Fulton, and many other objects illustrating the life and times of both Hudson and Fulton. This special exhibition covered an extent of 3000 square feet and was open from September 27 to October 30, 1909, including Sundays, from 9 to 5. There were 2036 visitors. The catalog forms an octavo of sixty pages and has as frontispiece a handsome colored print of Thomas Sully's portrait of Robert Fulton.

The special exhibition in the Lenox Branch of the New York Public Library was open during the months of September, October, and November, 1909, daily, except Sundays, from 9 to 6, and occupied 3612 feet of space. The number of visitors was about 5000. Here could be seen prints, books, manuscripts, etc., relating to Henry Hudson, the Hudson River, Robert Fulton and steam navigation. A catalog embracing 745 items was issued.

In the New York Zoological Park could be seen the various species of birds and mammals native to Manhattan Island and its immediate vicinity. The Park was open daily, including Sundays, from 9 until an hour before sunset. From September 25 to October 9, the number of visitors was 76,036. A special guide book, written by Dr. William T. Hornaday, consists of forty-six pages and contains seventy-one illustrations.

The Reformed Protestant Dutch Church of the City of New York made an exhibition of relics connected with the long history of the church, which was founded in 1628, and represents the earliest religious organization in the city. These objects were shown in the Chapel of St. Nicholas, corner of Fifth Avenue and Forty-eighth Street, and the exhibition was open to the public from 9 to 5 daily, during the period of the celebration.

In Richmond Borough, a collection of Indian implements, weapons, etc., from various parts of Staten Island, was shown by the Staten Island Association of Arts and Sciences, in the Borough Hall, New Brighton, Staten Island. It was open every afternoon from 1 to 5, except Sundays, Mondays and holidays; on Saturdays it was open

from 10 to 5. The extent covered was 1875 square feet and the number of visitors from September 4 to November 1, was 1511.

The special exhibition in the Van Cortlandt House, in Van Cortlandt Park, lasted from June to November, and attracted 3000 visitors in a single day. It was open daily from 9 to 5 and comprised Wedgewood medallion, and mezzotint portraits of illustrious persons who lived prior to the Revolution, cartoons and caricatures of political events, etc.

Washington's Headquarters, the old Jumel Mansion, situated in Roger Morris Park, Edgecomb Road and One Hundred Sixty-second Street, was visited by about 3600 persons during the month of October. The building was open daily, including Sundays, from 9 to 5. No special exhibition was shown here, but the fine Colonial furniture, pictures, etc., in the house were well worth a visit.

The most important of the special exhibitions which were organized by the Art and Historical Exhibits Committee, was the magnificent collection of masterpieces by Dutch painters shown in the Metropolitan Museum of Art, at Fifth Avenue and Eighty-second Street. Never before had so many splendid examples of Dutch art been gathered together in the United States; indeed, the exhibition as a whole has never been rivaled even in Europe. There were thirty-five Rembrandts—a larger number than exist in any permanent collection, except that of the Hermitage in St. Petersburg—nineteen portraits by Franz Hals, five specimens of the work of Vermeer van Delft, whose pictures are extremely rare, and pictures by Jacob and Salomon Ruysdael, Cuyp, Hobbema, Metsu, Van Ostade, and many others who were contemporaries of Henry Hudson. These works came from the finest private collections in the United States and many years will pass before an equally favorable opportunity will be afforded for the study of Dutch pictorial art.

The special exhibition also embraced a large and valuable collection of furniture, silver, pewter, porcelain, and glass, produced in this country between 1625 and 1815, the year of Fulton's death; and a fine collection of paintings by American artists born before 1800, including pictures by Woolaston, Copley, West, Allston, Peale, Stuart, Trumbull, Fulton, Doughty, etc.

These special exhibitions occupied 9070 square feet of space, and were open from September 30 to November 30, 1909, the hours being from 10 to 6 on week days and from 1 to 6 on Sundays; on Saturday the building was open until 10 p.m. During this period there were

300,775 visitors. The value of the exhibitions for the study of Dutch art, and of the work of Colonial silversmiths, was generally recognized as very great.

Following is a summary of special Hudson-Fulton exhibitions in the City of New York:

| INSTITUTIONS | DATES | SQUARE FEET | ATTEND- ANCE |
|--|-------------------|---------------------|--------------------|
| American Geographical Society..... | About 30 days.. | 1,572 | 1,000 |
| American Museum of Natural History..... | Sept. 15-Oct. 15 | 450 | 73,714 |
| American Society Mechanical Engineers.... | Sept. 15-Oct. 15 | 700 | 500 |
| Brooklyn Institute Arts and Sciences..... | Sept. and Oct... | 2,000 | 50,000 |
| Brooklyn Institute, Children's Museum..... | Sept. 1-Dec. 15. | 150 | 20,000 |
| City History Club..... | October..... | 300 | 160 |
| College of the City of New York..... | Sept. 25-Oct. 9. | 250 | 2,000 |
| Fraunces' Tavern..... | 2 or 3 weeks.... | 200 | 2,500 |
| Long Island Historical Society..... | 3 months..... | 40 | 50 |
| Metropolitan Museum of Art..... | Sept. 30-Nov. 30 | 9,070 | 300,775 |
| National Arts Club..... | 6 months..... | 3,900 | 10,000 |
| New York Aquarium..... | Sept. 26-Oct. 9. | 10,000 | 369,887 |
| New York Botanical Garden..... | Sept. 1-Dec. 15. | 50 acres | 150,000 |
| New York Genealogical and Biographical Society..... | Sept. 30-Nov. 1. | 1,000 | 300 |
| New York Historical Society..... | Sept. 27-Oct. 30 | 3,000 | 2,036 |
| New York Public Library, Lenox Branch... | Sept., Oct., Nov. | 3,612 | 5,000 |
| New York Zoological Park..... | Sept. 25-Oct. 9. | 50 acres | 76,036 |
| Reformed Protestant Dutch Church..... | 6 days..... | 200 | 1,000 |
| Staten Island Association Arts and Sciences. | Sept. 4-Nov. 1.. | 1,875 | 1,511 |
| Van Cortlandt House..... | June-Nov..... | 3,000 | ¹ 5,000 |
| Washington's Headquarters..... | October..... | 3,200 | 3,600 |
| | | ² 44,519 | 1,075,069 |

¹ 3,000 in one day, nearly 300,000 for the year.

² Not including Botanical Garden and Zoological Park.

Treasurer Wilson.—"Mr. President, I think this paper is in a way one of the most interesting that I have listened to, and I simply want to impress upon us all the possibility of museum directors and museum people making their own special field interesting by labeling trees and localities of historical interest and by doing anything which will make our cities and villages more interesting and attractive to visitors.

It is a missionary enterprise in which I think we all ought to engage and one which would make the Baedeker of the United States ten times more interesting."

Mr. Frank C. Baker (Chicago Academy of Sciences).—"I think this paper illustrates also, Mr. President, the value and utility of our museums in illustrating current events. Many museums do not pay much attention to that, but I think they ought to do so. I know that my museum—and, I presume, many others—did not pay any attention to the comet which visited us recently, and yet there was an opportunity which if embraced would have made the museums more popular. The American Museum seems to be the only one, as far as I know, that really recognizes that phase of the subject. There seems to be nothing going on that Dr. Bumpus does not emphasize to its fullest extent in that museum. At the time Peary attained the north pole he had a whole room exhibiting arctic features and giving the public an idea of that big region; and I think all our museums should keep up with current events and let the people know that they have something beside a storehouse of prehistoric relics."

Treasurer Wilson.—"It ought to be stated that you could see Halley's comet in the American Museum certainly four months before it came into view."

President Lucas.—"One thing which might be said on behalf of other museums, is that we do not always have the almost infinite resources of the American Museum. Some of us would like to do more. Apropos of this paper and the question of labels, I might mention the evolution of the tree labels. The first labels prepared for some of the parks read in this way: 'White Oak; indigenous to the Hudson River Valley at the time of Hudson.' It was pointed out that if it was indigenous to the Hudson River Valley in the time of Hudson, it was indigenous at any time, so they struck that out. Then the question was asked, how many of the people who read that label could understand the meaning of the word 'indigenous,' so the label as finally prepared read, 'A native of the Hudson River Valley.' "

Hon. T. Guilford Smith (Buffalo Society of Natural Sciences).—"Some time ago, I think a year ago, with a view to making known to the citizens of Buffalo what they had here in the way of a museum, the Buffalo Society of Natural Sciences joined with the Public Library up-stairs in issuing a pamphlet, free to the public, showing what was to be seen in this building. The Historical Society issued a similar

pamphlet. It was a sort of guide to the citizens of Buffalo and to others as to what could be had here, and which might become a nucleus perhaps of a municipal university. Carrying out that idea, and taking advantage of the meeting of this Association, there has been prepared a pamphlet which you have found with your other papers in reference to the Buffalo Society of Natural Sciences, setting forth what we have that we think is worth your attention. I suppose the same will be found at all the other institutions which you visit, and all of them collected will make a sort of hand-book, when we are through, for the guidance of those who wish to receive a certain amount of instruction, and who cannot afford to pay for it."

Dr. Arnold E. Ortmann (Carnegie Museum).—"The question of labeling trees recalls to my mind a little experience I met with this spring. While trying to penetrate the dark wilderness of Pennsylvania I struck the Mason and Dixon line, and talked with a farmer who told me that was the point where these two men, Mason and Dixon, when they measured this line from east to west, were compelled to retire and run away from the Indians. I asked him, 'Where is that place?' 'Oh,' he said, 'it used to be marked by a big tree standing on a farm owned by a man named So-and-so, and that was where their last camp was.' 'Well,' I said, 'can I see that tree?' 'No,' he said, 'they cut it down last year.' Now that is a little thing, but I should say that the tree which marked the site of the last camp of Mason and Dixon was an interesting historical point, and such a tree should be preserved and marked, and should not be suffered to be destroyed by the man who simply wanted to make use of the lumber. I would like to ask whether in a case like that it is possible for the American Association of Museums, or for any individual museum, to take steps to preserve and label things which are of historical or scientific interest but which are too large to be brought into a museum and exhibited there. I mention in this connection that in Germany there is a great association which has exactly this purpose. There are beautiful sceneries and historical objects which might go to destruction without the care of some association. It always tries to get property rights, to fence them in so to speak, label them, make them accessible and intelligible to the public, and to preserve them as long as they can be preserved. I think that might possibly be one of the objects of the American Association of Museums, and I only wish to offer this suggestion with the hope that some one else may have something to say on the subject."

President Lucas.—"I am sure Dr. Ortmann will be very glad to know that Dr. Gilman, who last year had a paper on the preservation of local monuments, was to have been heard on the same subject at this meeting. His paper would have read: Museum Registry of Local Art¹, and it is a pity, as Dr. Ortmann says, that so many of our monuments, natural and artificial, should be destroyed simply because people want the brick, stone, or lumber for their own personal uses."

Miss Alicia M. Zierden (Pennsylvania State Museum).—"Local historical societies are doing a great deal of that work, and it might be that in combination with them more could be done."

Mr. Baker.—"This subject should be taken up by each local museum which should take care of its particular neighborhood."

Dr. S. A. Barrett (Milwaukee Public Museum).—"One obstacle to the preservation of local monuments and similar things by local museums is that, as far as I am aware, there is no other means than direct purchase of obtaining property rights, or giving a museum absolute dominion and control over the particular monuments in question. There is a way in which the government might take it up, as, if I am informed correctly, is done in Mexico. The pyramids and monuments found here have been taken under government control. The country being covered in many regions by a jungle, these monuments may not be known. A person or company acquiring title to a tract of land and proceeding to exploit it may suddenly come upon some ancient temple or monument of one sort and another. In this case it is provided by law that all such monuments, with a certain acreage, shall immediately revert to the government, the lawful owners being indemnified in cash or by an equally valuable piece of land in another section. The government of the United States has taken one step toward this in providing for the preservation of cliff dwellings and other things of that sort in the Southwest, where still on government land, but I know of no provision for acquiring these cliff dwellings and other monuments which are on private property, though, according to the Mexican system, these would revert automatically to the state."

Mr. Henry R. Howland (Buffalo Society of Natural Sciences).—"I would like to say that the American Archeological Society is very busily engaged in just that sort of work, and I presume later they

¹ Mr. Gilman's paper was subsequently read by Mr. Louis Earle Rowe, and is printed on pp. 84-87.

are hoping to secure and preserve as many as possible of the monuments which are now in private possession."

Mr. Herbert E. Sargent (Kent Scientific Museum, Grand Rapids).—"I would like to have passed, to take back to Grand Rapids a resolution of this Association requesting the coöperation of museums and communities in this work, because we have in our vicinity what has been pronounced by one of the leading archeologists to be one of the finest groups of mounds in the United States, some of them twelve, fifteen, and sixteen feet high. Half of these mounds are owned by a good roads corporation for the sake of their preservation. The other half are not. In the name of science I should like to see the will of this organization expressed to the end that these things may be locally preserved. I think it would be a good principle, even if we could not go further than to adopt the resolution."

Mr. William C. Mills (Ohio State Archeological and Historical Society).—"I wish to say that the State of Ohio, at the present time, has full possession of Fort Ancient. We have been trying to purchase this tract for the last fifteen years, and have finally accomplished it. You all understand that the very moment a state or institution undertakes to purchase any historical spot, the price immediately goes up. About ten years ago the State attempted to purchase Fort Ancient. We were able to get about a hundred acres of it, and a little later we got perhaps another hundred acres at almost double the price of the first; then for ten or twelve years some twelve or fifteen acres were held at \$100 an acre, whereas they were not worth \$10 because the land was rough and stony and could not possibly be used for any purpose except that of the Society. After a time a portion of it was laid out into lots and some of it sold, which made it more difficult for us to obtain. We finally cleared it up last year, and now have more than three hundred acres under our care and direction. The State cares for it properly and we provide a custodian. It is free to all visitors and is accessible by a short walk from the station at Fort Ancient to the top of the hill.

"We also have the Serpent Mound Park of some seventy acres, which is kept up by the State. You may remember that a few years ago this park was purchased by Harvard University, which found it impossible to look after it and therefore agreed to turn it over to the State of Ohio. The State Archeological and Historical Society now has charge of it and has erected a large tower from which one can see the entire Serpent at a glance. This is, however, seven miles from the

MUSEUM OF FOSSIL BOTANY**REMAINS OF EXTINCT PLANTS,****THE****ANCESTORS OF PLANTS NOW EXISTING**

The floor space included in the two wings is 6072 square feet, all of which is devoted to display cases, with the exception of two portions, each 16 x 15 feet, at the eastern end of the east wing, partitioned off as rooms for the sorting and preparing of specimens.

The floor arrangement of the cases is based upon stratigraphic sequence. Table and wall cases Nos. 1-4 contain plants of Eozoic and Paleozoic time. Table cases 5-9, Mesozoic. Table cases 10-12 and wall case 5, Neozoic. This sequence of the cases, while it is primarily a geologic and phylogenetic one, illustrating the general evolution of the vegetable kingdom from its beginning, as represented by the remains found in the Eozoic crystalline rocks, to recent times as represented by the contents of peat bog and other surficial deposits, is incidentally also a taxonomic one when broadly viewed, inasmuch as the plants lowest in the scale of life predominate in the older geologic periods and the higher types in the more recent ones. In other words, the relative abundance, from the older formations upward, of algae, pteridophytes, gymnosperms and angiosperms, represented in the arrangement of the cases according to stratigraphic sequence, represents also the taxonomic arrangement of the systematic botanical collections on the museum floors above. This scheme of installation and sequence therefore brings the museum collections, as a whole, into one harmonious expression of the principle of evolution in connection with the vegetable kingdom.

Each collection from any limited locality, or made by any expedition from a more extended area, is kept intact in the drawers of the case where it belongs stratigraphically, as nearly as possible; although occasionally the specimens may represent more than one geological horizon. Whenever possible, also, a copy of the report or other publication in which a collection is described or discussed is deposited with it, in order to facilitate reference to descriptions and illustrations. The only exceptions to maintaining the integrity of the collections are that individual specimens may be withdrawn and utilized for display purposes.

Type and figured specimens are designated, respectively, by means of red stars and blue triangles, and display specimens are selected either because of their relative perfection of preservation as a whole, or in order to illustrate some detail of outline, nervation of structure, or for the reason that they express some idea relating to evolution, geographic distribution, stratigraphic type, method of preservation, or some other special feature.

The number of specimens on display is approximately 3700. Two large labels in each case indicate the general geologic age of the contents, viz., Eozoic, Paleozoic, Mesozoic and Neozoic, and the geologic period or periods represented, viz., Laurentian, Silurian, Cretaceous, Tertiary, Modern, etc. Following are some examples of these labels:

PLANTS OF EOZOIC AND EARLY PALEOZOIC TIME:

**LAURENTIAN,
CAMBRIAN, SILURIAN AND DEVONIAN PERIODS**

PLANTS OF MESOZOIC TIME:

TRIASSIC AND JURASSIC PERIODS

PLANTS OF NEOZOIC TIME:

QUATERNARY AND MODERN PERIODS

Each specimen, with the exception of the very large ones, is placed upon a separate wooden block with white surface and black sides and front. The front is beveled and provided with a beading along the bottom to hold the specimen label. This label includes the generic and specific name of the specimen; the family, order, or class of plants to which it is referred; the geologic period and subdivision in which it belongs, and the locality or region where it was collected, viz:

| | |
|-------------------------|--------------|
| FAMILY BETULACEAE | BIRCH FAMILY |
| CARPINUS FRATERNA Lesq. | |
| TERTIARY | MIOCENE |
| FLORISSANT, COLORADO | |

| | |
|-----------------------------------|-------------|
| FAMILY PINACEAE | PINE FAMILY |
| PICEA CANADENSIS (Mill.) B.S.P. | |
| QUATERNARY | GLACIAL |
| NEW DORP, STATEN ISLAND, NEW YORK | |

Whenever a figure of any specimen can be secured it is placed alongside the specimen, on the same block. This is often of considerable importance in connection with an adequate display of fossil plants, as many interesting specimens are too obscure to be readily discerned without close scrutiny and frequently require the use of a hand lens in order to detect details. Many such specimens, some of them types, would be useless for display purposes without the accompanying figures.

These several features of the labeling are thought to include about all the explanatory matter that is required for the information of the average visitor; but experience has demonstrated that there are many who lack even the elementary knowledge necessary to understand what the wording of the labels is designed to express. This matter will be discussed later on.

SPECIAL FEATURES

Aside from the educational value of the collections as a whole, in illustrating the ancestry and evolution of our living flora, many of them are, individually, of historical as well as scientific interest, especially those which represent material collected during the prosecution of well-known government explorations and surveys.

Among the latter may be mentioned the collection made in Australia in 1838-1842, by the Wilkes Exploring Expedition, described in the report by Professor Dana, and those secured during the period

between 1855 and 1860 by the Northwest Boundary Commission, between Canada and the United States, and the Pacific Railroad, Macomb, Ives, and Raynolds expeditions, in the western and southwestern parts of the United States, which were made the subjects of reports by Professor Newberry.

Also of interest historically are the specimens collected by Professor Newberry about 1850, upon which he based his earliest paleobotanical contribution, "Fossil Plants from the Ohio Coal Basin," published in a series of papers in volumes I and II of the *Annals of Science*, in 1853-1854. These papers are among the earliest contributions to American paleobotany and the specimens represent some of the earliest described American fossil plants.

The entire collection from the Cretaceous of New Jersey, upon which Professor Newberry based his "Flora of the Amboy Clays," issued as Monographs of the United States Geological Survey, volume 26, together with the larger part of the specimens described by the writer in "The Cretaceous Flora of Southern New York and New England," issued as volume 50 of the Monographs of the Survey, form one of the museum features which appears to attract considerable attention and evidently possesses an element of interest by reason of its local character. These specimens include practically all that have ever been collected representing the fossil flora of New York City and vicinity, and those from Staten Island, Long Island, Block Island, and Martha's Vineyard could probably never be duplicated, as they were collected at intervals during the past twenty-five years, at such fortuitous times as the limited plant-bearing beds happened to be exposed, and most of these are now covered up or obliterated.

The value of local collections, in inciting interest and a desire to know more about the objects which may be collected within a relatively short distance from home, can hardly be over-estimated and, in recognition of this fact, two cases devoted to these specimens have been arranged as a special museum feature.

The collections in general, as would naturally be inferred from what has been outlined in regard to the origin of those specially mentioned, are very rich in type and figured specimens. These are being card cataloged as rapidly as circumstances permit and, when the work is completed, these will be arranged alphabetically and printed in pamphlet form for distribution to other institutions and to such persons as may be interested in paleobotanical investigation or research.

The conversion of our modern vegetation into fossil forms, by the various processes of nature, is illustrated by a series of specimens, which include leaves and leaf impressions preserved in pond silt; fragments of vegetation in recently formed sand or clay concretions; contents of peat-bog deposits; wood from swamp and estuary accumulations, partly or completely lignitized or converted into carbon by the process of natural distillation; silicified wood, showing replacement of the tissues through the agency of water carrying silica in solution, and similar specimens showing replacement by iron, lime, or other mineral matter; a variety of plant remains from the vicinity of mineral springs, preserved by incrustation of silicious sinter and calcareous tufa; etc.

This feature is one in regard to which the average person does not appear to be well informed. The popular conception of a fossil is that it is necessarily something very old and that the methods by which it became converted from the living into the fossil form no longer prevail in nature. The fact that fossils are in constant process of formation today, just as they were during every day in the past, is distinctly surprising to most persons, and specimens which demonstrate or illustrate the processes of fossilization are important educational exhibits.

GENERAL COMMENTS

The matter of labeling—that is to say the amount of explanation or information which a label may properly contain—is something which I assume has worried everyone who has had anything to do with the installation and display of museum material. Frequently, after time and careful consideration have been given to the selection, arrangement, and labeling of a collection, some remark by a casual visitor will indicate either that the exhibit fails to express the idea for which it was designed, or else that the visitor was lacking in the elementary knowledge necessary for an adequate conception of what the specimens themselves are, or what they actually represent; and the question that constantly presents itself to the curator and demands an answer is: To what extent is it advisable or permissible to go in connection with explanatory matter on labels?

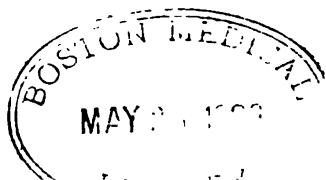
One visitor who chanced to observe me carefully chipping the matrix, with hammer and chisel, from around a finely preserved fossil leaf, remarked enthusiastically to a companion: "How beautifully he engraves that leaf, doesn't he?" However, the visitors who are not

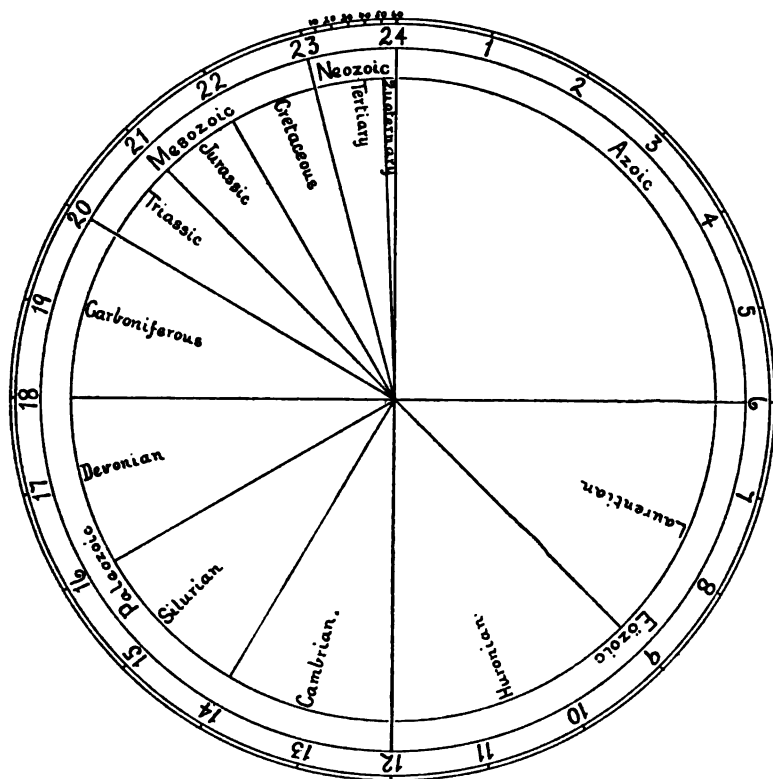
sufficiently well informed to differentiate between a museum of fossil plants and an art gallery are probably very few in number and need not be considered in any scheme of museum economy. Nevertheless, experience has demonstrated that certain factors in connection with fossils in general require careful consideration in regard to explanatory labeling if any display of such objects is to have its proper educational value, even to the person of average information and intelligence. It is not safe to assume the possession, by the general public, of even the most elementary knowledge relating to natural objects.

For example, an astonishingly large number of persons are evidently puzzled over the problem of how a fossil, especially such a fragile object as a leaf or flower, could have become imbedded in solid rock or left its imprint in such hard material. To such persons, of course, some information in regard to the origin of sedimentary rocks is necessary, and some explanation of the difference in origin between sedimentary and igneous rocks, in order that they may not expect to find fossil remains in a trap dyke as well as in the sandstone associated with it, as some occasionally do in connection with the rock of the Hudson River Palisades. How best to impart this information by means of an explanatory chart is something that I have been seriously considering.

Probably the one question which is most frequently asked in regard to a fossil is how old it is, or how long ago in the world's history was the geologic period in which it lived. Disappointment is usually expressed because definite figures in years can not be given. The age of the world, the extent of geologic time, and the slowness of geologic processes, are matters in regard to which most persons apparently have no conception, and a majority are frankly incredulous when tens or hundreds of thousands of years are mentioned in connection with the relatively recent remains of the Quaternary Period, and indefinite millions of years in connection with those which preceded it.

It has occurred to me that possibly a chart, giving the calculations which have been made of time ratios in connection with the primary geologic time divisions, might be utilized in order to convey some idea of this factor, in preference to any attempt to indicate definite figures for the probable antiquity of the several geologic periods. With this idea in view, I have prepared the following chart, adapted from a similar one by Dr. Lester F. Ward:





This chart is based upon (1), an assumed age for the earth of 72,000,000 years, which is a fair average of the numerous estimates which have been made by geologists and physicists in this connection, and (2), the ratios between the several geologic time divisions as estimated by eminent geological authorities.

The clock dial, representing the cosmic day, is divided into twenty-four hours, hence each hour is equivalent to 3,000,000 years of geologic time.

The estimates of the geologic time division ratios are:

| | |
|---|----|
| Pre-Paleozoic (Azoic and Eozoic) Time | 12 |
| Paleozoic Time | 8 |
| Mesozoic Time | 3 |
| Neozoic Time | 1 |

Applying these ratios to the hour divisions on the clock dial we have:

| | YEARS |
|--------------------------|------------------|
| Pre-Paleozoic Time | 36,000,000 |
| Paleozoic Time | 24,000,000 |
| Mesozoic Time | 9,000,000 |
| Neozoic Time | <u>3,000,000</u> |
| | 72,000,000 |

By subdividing each of the time divisions into its appropriate geologic periods the approximate antiquity of each period is indicated.

The even subdivision of Pre-Paleozoic Time into Azoic and Eozoic is purely arbitrary, as is also the indicated time duration of the several geologic periods, except in connection with the Quaternary, which is assumed to include the last 500,000 years of cosmic time, equivalent to the last ten minutes of the twenty-fourth hour, and to represent the period during which man has been in existence.

Dr. Charles F. Millsbaugh, curator of botany, Field Museum of Natural History, Chicago, then read the following paper:

BOTANICAL INSTALLATION

In the earlier period of museums in America, the then highest museologist publicly stated that "botanical material could not be made sufficiently interesting to people to warrant space being given to it in a public museum." Within the past fifteen years another museum authority made a statement that "in a public museum of botany systematic material could not be satisfactorily installed in connection with economic." It is in refutation of both these claims that I present this paper. I wish to offer proof that botanical material is essentially interesting to the general museum visitor, and, at the same time, of the deepest educational value to him. I concede that botanical specimens lack, to a large degree, the element that satisfies mere curiosity, yet their high utilitarian character, as the basis of the needs of man, gives them a wider interest than those of any other branch of natural history.

The great question as to the value of botany to a natural history museum lies in the manner of its presentation. A line of demar-

cation has been drawn between systematic and economic material. Purely systematic material includes all that which is intended to illustrate the interrelationship of genera and families—the relationship of each plant to its nearest neighbor—material that is logical, per se, to the scientific mind. To be museum material this must also be made logical to the lay visitor. If not so made it should be placed in seclusion, for the use of the student only, not displayed where it will tire and confuse others. There is scarcely a museum in Europe that does not clutter its cases with masses of plant material in pickle—pickles that bear no likeness to the original shape or condition of the plant so far as the average visitor can detect through the discolored liquid in which it is preserved. Economic material consists of all forms of utilized plant products. These specimens can only be of exhibit value when they are ample enough to convey some adequate idea of their character and utility from the mere shape and size of the specimen itself. In addition to the systematic and economic installation, large series of valuable correlative groupings may well be employed, such as: forestry and dendrology; the means employed by plants to disseminate the species; diseases of plants, and those plants causing disease in animals; habit plants; plant structure; plant life; fertilization and cross-fertilization; evolution and mutation; ecology; in fact as many highly educational monographic displays as means and space may permit.

The Field Museum of Natural History is essentially a museum for the public, not, as is the case with most European museums, a display of study material to which the public is grudgingly allowed admission. Its collections are displayed, and labeled, with the sole object of interesting and educating the public which it invites and welcomes to its halls. In thus popularizing its installations it does not in the least sacrifice the scientific value or aim of a museum of its sphere. It cloaks the nomenclature and theoretic classification of science, so far as the attention of the public is drawn, while, at the same time, these elements are present to the satisfaction of the naturalist and the student.

I once saw a couple of men standing before a fine pair of specimens in the mammalogic section of a public museum. The specimens were labeled in large type: *ODOCOILUS AMERICANUS BOREALIS*, Michigan, U. S. A. That was all. The men spelled out the words as well as they could; then one ejaculated: "I don't know what in h—l that means, but any fool knows that them are deer." To those

men the value of the museum shrank decidedly and in their minds the standing of the scientific man who labeled the deer fell considerably below the standard he doubtless hoped to maintain.

The installer of a collection in a natural history museum for the public should show his knowledge of nature, and of psychological effects, when he places objects before the outsider, for the outsider is the man who really knows things as they are, not as scientific classification would they should be.

The first item presenting itself in the practical details of installing a collection for public view is the case. Ours are of natural finish red birch, with just sufficient wood in evidence to safely support the plate glass of the face, and only sufficient depth to allow of one plane of installation. Interiorly they are painted flat black, as the only color that should attract the eye is that of the specimens themselves and that should in no case be interfered with. I fully realize that there is no background color more restful and pleasing than a gray, nor one that will better preserve and enhance the color values of specimens, yet permanency must be the main desideratum in installation, and for that reason gray, white, or any color, must needs be eliminated. No color can be patched without disfiguring the surface, nor can any colored pigment be matched after light and time have acted upon surfaces previously painted with it. Despite the disadvantages of black, and they are many, it is the only pigment that will not fade; that can be successfully and unobtrusively patched in reinstallation; that can be readily and perfectly matched in new installations; that will hide all imperfections in the woodwork and the extraneous appliances necessary in supporting specimens; that will give a background against which the outlines and colors of all objects will be fully defined; that will clearly demark each specimen from its neighbor; that will prove permanent and fresh as long as the case remains installed. Not only does flat black answer all these equations but it has the advantage of concealing the mounts, placques, label holders, brackets, supports, screws, nails, and other accessories that may be painted with it, while even charcoals stand out in bold relief against it.

Our cases are mostly of the wall type, eight feet high, twelve feet long, and of such depth as may be necessary to accommodate the largest object of each special installation. Nine-tenths of those thus far installed are nine and a half inches deep in the glazed portion. The lower section of a case being ill adapted to the display of material

we have converted it into a locker space leaving the display area five feet eight inches by twelve feet. This is divided into two units by single-pane sashes. Of the lockers, two of which are beneath each unit, the first contains a series of duplicates of the material installed above and constitutes an organized and protected study series to which specially interested persons are allowed access. The other affords a contiguous depository of allied and new material as it is received. Thus everything pertaining to the material in the cases—notes, duplicate labels, original labels, and the like, is in direct association and readily available.

With its dark background and light-colored sash frame each case is considered as a picture to be made as rich in color and form and as attractive in composition as the art of the installer may be capable of producing. It is this picture that is intended to first attract the visitor—first to cause him to halt in his “museum stride,” and to incite in him a desire to examine details. In this presentation the labels are fashioned so that they blend with the whole, yet when attention is once called to the specimens themselves the labels stand out clear and attractive. I realize that in this form of installation I am at direct variance with the axiom of a great museum authority who claimed that “a proper installation should consist of a collection of carefully prepared labels accompanied by well selected specimens.” Labels do not in themselves attract. Indeed they almost invariably repel. They should not, therefore, be considered first in importance in a museum for the public, but rather as essential accessories. Ours are printed in silver upon card of the same flat black as the case interior and specimen mount. They never obtrude, yet they cannot be overlooked.

Referring again to plant material in bottles pickled in a preservative liquid, discolored, dead, ghastly, of no general resemblance to nature and of little interest to the laity; such material may be likened to a collection of hides hung upon pegs in alleged representation of animals. Such material is entirely inadequate; it must be replaced by something worth while, something that is representative of life. To accomplish this actual reproduction is necessary—reproductions that will interest the observer and reveal the intrinsic beauty and instructive value of the plant itself. Such reproductions must be natural in size and texture and as perfect in character and detail as it is possible for the highest skill to produce. Any reproduction that falls short of this fails as ignominiously as the pickles fail. They

should be made of any, or all, materials best suited to represent the object. Glass flowers belong in a museum of glassware, yet reproduction can not be successful without the utilization of glass; wax flowers to an exhibition of wax work, yet the employment of wax is essential in all reproductions; coloring must be done without the least indication of the brush. Nature does not paint her flowers; whole fruits must not be displayed separate from their leaves and attachment to the branch. A museum is not a horticultural show. In addition to the natural-size reproduction enlarged models of essential characters must be added in order to exemplify the existing differences that form the basis of classification. It is claimed by many museum men that such reproductions are false, that fabrications should have no place in museum collections, yet they consider taxidermy essential and are glad to secure casts when they are unable to compass originals.

In the botanical department of the Field Museum installation is being carried on to the end that the complete series of cases shall represent, in successive order, each great family of plants, their structural characters, and their natural association with each other. The first objects installed in a given case are: a natural-sized reproduction of a typical plant of the family to be installed therein (choosing a plant of known utilization where possible); a model of an enlarged flower, detailing its organs; and a section of a ripe fruit so cut that it will illustrate the developed ovary. Following these are reproductions of variant perishable fruits or natural carpologic examples; then as many useful products, yielded by the family, as can be secured.

From this installation the school boy or girl, or the general visitor soon realizes that there is an interrelationship in plants, and even a consanguinity in plant products. They see with satisfaction a valid reason why, for instance, sassafras and cinnamon are so much alike in odor and analogous in taste, and become not unwilling to associate with them both cassia-buds and camphor.

Pleased with the new horizon that opens before them they examine other products in the case with an actual desire for further satisfying discoveries. They are now willing to read labels—to accept them with interest—and the labor that the museum curator has expended upon his installations has accomplished its object.

Treasurer Wilson.—"I would like to ask Dr. Millspaugh if there is any other museum in existence attempting to carry out such a

work as this. I have never known of its being done so fully, so thoroughly, and so beautifully elsewhere."

Dr. Millspaugh.—"The only museum I know of, Dr. Wilson, that is carrying this out to any extent at all is the British Museum in South Kensington, in the fungi. In Dresden they are trying to preserve original plants, but are failing very miserably indeed."

Prof. Edward S. Morse (Peabody Museum, Salem).—"Dr. Millspaugh's paper will set us all thinking in regard to the color of our cases. The radical departure of painting the cases black certainly surprises me, yet it was presented so clearly that in well-lighted halls it may be the very best thing. Many of our museums are not well lighted, and obviously in a hall with few windows it would be impossible to have black cases. Too much light would be absorbed. On the other hand we often paint our tablets black, and, as the speaker has said, if you get a clear definition, even a minute particle will show against a dead black surface, and you have the advantage of a color that will not fade. White paint becomes yellow and shows cracks. Our fabrics fade so that we have had to discard entirely cloth that was used only four or five years; and the ivory colors for charts all fade white in a very few years."

President Lucas.—"I am sure all the museum men present have heard Dr. Millspaugh's paper with great joy. It is the kind for which we have all been waiting. As far as I know it is the first attempt to install a botanical collection which shall be really valuable alike to the public and to the scientific man; it marks a distinct departure in the installation of botanical collections. In regard to the backgrounds, I still hold to my belief that we must be governed by circumstances."

Professor Morse.—"It is obvious that Dr. Millspaugh has a fine flood of light. The way those cases were illuminated he must have had galleries without roofs."

Dr. Millspaugh.—"I might mention in regard to this that all the lower section of the Field Museum of Natural History is one of the dingiest places you can imagine in a museum building. The department of geology, under Dr. Farrington, has black cases throughout. The same is true of the department of zoology, to some extent, and of the department of anthropology. In some of those halls, especially on a winter day when there is snow on the roof, it is so dark you can hardly find your way about, yet the cases are as evident as any other portion."

Professor Morse.—"Then your physical laws must be different."

Dr. Millspaugh.—"Our physical laws in Chicago are entirely different from those of any other place in the world." (*Laughter.*)

President Lucas.—"I may say that the picture now on the screen represents the new species of *Boötherium* discovered by Mr. Sargent and described by Mr. Gidley of the National Museum. We could, I think, profitably discuss Dr. Millspaugh's and Dr. Hollick's papers for an hour or two. I am sorry that we have not the time. They are both admirable."

The meeting was then adjourned until the following morning.

SESSION OF WEDNESDAY, JUNE 1

Morning

The Association reassembled at the rooms of the Buffalo Historical Society in Delaware Park with President Lucas in the chair.

Treasurer W. P. Wilson read his annual report, which was referred to the Auditing Committee, consisting of Messrs. Farrington, Baker and Ward, to report on the following morning.

The Chair then asked for a ruling of the Association regarding members in arrears for dues and it was voted that the Treasurer be directed to prepare a circular stating that members two years in arrears will be dropped from the rolls and to send to the Secretary a list of such members. It was further provided that at the time of publication of the *Proceedings* the Secretary be directed to withhold copies from all members in arrears and to send them instead a notification that the *Proceedings* are held for the payment of dues.

The amendments to the Constitution proposed on the previous day were then considered. The amendment providing for the increase of the dues of Active Members from two dollars to three dollars was then adopted. The paragraph relating to Associate Members was then amended to read: "Persons contributing one dollar per annum may become Associate Members." Dr. J. E. Talmage was then appointed a committee of one to formulate an amendment to the Constitution defining the manner in which amendments may be made. In discussing these amendments and the need of larger funds for the Association it was pointed out that the Constitution fixes a minimum fee only of ten dollars for Sustaining Members and it was the sense of the meeting that this class of members be requested to contribute more

largely to the treasury for the coming year in order to assist in defraying the unusual expenses incident to the preparation of the Directory of Museums.

The Association then proceeded to the election of officers for the ensuing year with the following result:

President:

Frederick J. V. Skiff, Director, Field Museum of Natural History, Chicago, Illinois.

Vice-President:

Edward S. Morse, Director, Peabody Museum, Salem, Mass.

Second Vice-President:

Edward Robinson, Assistant Director, Metropolitan Museum of Art, New York City.

Secretary:

Paul M. Rea, Director, Charleston Museum, Charleston, S.C.

Treasurer:

W. P. Wilson, Director, Philadelphia Museums, Philadelphia, Pennsylvania.

Councillors, 1910-1913:

Frederic A. Lucas, Curator-in-Chief, Museums of The Brooklyn Institute of Arts and Sciences, Brooklyn, N. Y.

Henry R. Howland, Superintendent, Buffalo Society of Natural Sciences, Buffalo, N. Y.

The first paper of the morning was then read by Dr. A. R. Crook, curator, Illinois State Museum of Natural History, Springfield, Ill.

THE TRAINING OF MUSEUM CURATORS

Before the writer was aware that this subject was to be taken up at this meeting he began to collect materials on the equipment and work of museum men. He was led to do so for two reasons: first, because in conversation with successful professional men, governors of states, presidents of universities, members of scientific faculties, distinguished geologists, and even trustees of museums, he observed a lack of just appreciation of the preparation requisite for the highest type of museum man and of the nature of the work which the director of a museum should accomplish; second, because of the thought that the

director of a museum while pursuing one object might close his eyes to great prizes, might be so engrossed in trifles or details as to lose sight of the larger view, might become one-sided and miss great opportunities of usefulness. Hence it seemed probable that suggestions from a number of colleagues would be helpful to the museum man as well as to trustees and the public at large and that the consideration of this question would help the museum both from the outside and from the inside.

Realizing that in a multitude of counselors there is often wisdom, requests were sent to a dozen of the leading museum men of the country for a list of questions which might aid in judging a man's fitness for the position of director or curator of a museum. It may be said parenthetically that whether the official is called director, curator or by some other title is immaterial. Near the close of a three-year period of study in German universities where the writer had been assiduously assimilating the German language along with geological ideas he sent in one mail letters to the "Keeper of Geology" and to the "Keeper of Paleontology" in the British Museum and a letter to a geological curator at one of our eastern institutions whom he inadvertently addressed as the "Keeper of Geology." In due time a savage reply from the American came stating that the only "keeper" that he knew was a keeper of a penitentiary or of an insane asylum and being neither he would be obliged if his correct title were employed! Whether we call the man at the head of the museum director, curator, or keeper is immaterial. The question is what kind of training he should have and what kind of a man he should be.

The museum over which he is to preside is the ordinary natural history museum of which there are some hundreds in the United States and which reach out in various directions touching possibly on the borders of many departments of science and life.

If the public generally and trustees in particular were better acquainted with the training requisite and the work to be accomplished by a museum curator, there would be better methods of appointment and better museums. Every private museum would select its employees after examination and every municipal and state museum would be under civil service. And if young men with ambitions to take up life work of this character knew what attainments were desirable they would be better prepared. The kind of training necessary may be inferred from the questions which would reasonably be asked of a candidate for such a position.

Münsterberg proposes to determine the fitness of students for various professions by a series of psychological experiments and thus aid many a youth in avoiding the work in which he is almost sure to fail and in choosing that for which he has the physical and mental capacity. The psychological experiments which might be devised to show whether or not a candidate would make a good curator would necessarily be extremely varied since in no profession is a greater variety of accomplishments and capabilities required. As far as the writer is aware they have not been devised. However, a good idea of the training which a candidate should have may be obtained from questions prepared by men whose experience has given them a broad outlook and a profound knowledge of the necessities of the situation.

The questions are roughly arranged in three groups: the first dealing with the general educational history of the candidate; the second with his specific knowledge of the museum situation; and third, his ideas concerning the more technical portion of the profession.

The majority of colleges have entrance requirements such that few members of their own faculties could answer the questions which they expect incoming students to be able to answer! Upon looking over our list of questions we may wonder how many of the profession could measure up well if put to the test!

But the questions are fair. They cover the ground. Every present and prospective museum man should be able to deal with them with credit. I have entitled the series a typical list of questions useful in determining a candidate's fitness for the position of curator of a museum of natural history. They are as follows:

1. In what schools have you studied?
2. What degrees have you received?
3. To what scientific organizations do you belong?
4. State the positions which you have held, the duties involved, and your length of service.
5. What languages other than English do you know?
6. In what countries have you traveled?
7. What have you been interested in collecting?
8. What experience have you had in museum work and in what line are you most interested?
9. Have you skill in mechanical work, photography, taxidermy, or field work?
10. In how many of the following have you a working knowledge and which is your specialty—geology, mineralogy, paleontology, archeology, ethnology, zoology, botany?

11. Give full list of your scientific publications.
12. What skill do you think you possess as a solicitor for materials and money?
13. Along what lines should a museum be developed; in other words, what is the purpose of a museum?
14. Name ten of the leading natural history museums of the world and state the essential character of each.
15. Give titles of the scientific publications issued by three leading museums in America and by three foreign museums.
16. What has been the trend of museum development in America during the past decade?
17. Distinguish between (a) the educational and (b) the scientific work of a museum.
18. Describe the conditions under which a museum should be a conservator of materials and those under which it should be an aggressive agent in educational work.
19. Has it any other function?
20. Define the scope of (a) a university natural history museum; (b) a municipal natural history museum; (c) a state natural history museum; (d) a national natural history museum.
21. State briefly your views as to the relations which a municipal or state museum should maintain with schools, colleges and special students.
22. Explain in detail the age, intelligence and occupation of the people to whom a museum should appeal and how it can best benefit them.
23. To what extent should the growth of a museum depend upon donations and to what extent upon vigorous effort to reach certain ideals?
24. What do you consider the principal requirements for a satisfactory museum building? (Consider at least five points.)
25. Explain the principles of proper labeling, giving an outline of a suitable label for *Amphelis cedrorum*, Cedar Waxwing; for an army field writing desk used by General Grant during the civil war; for a fossil plant; for a mineral.
26. Discuss items to be considered in case construction.
27. Discuss items to be considered in the color scheme of rooms and furnishings.
28. In what order would you arrange the main groups (such as minerals, rocks, reptiles, etc.) starting with those which would be first seen upon entering a museum?

29. Would you arrange a collection of fossils stratigraphically or zoologically?
30. Where would you store a study series collection?
31. Should a museum receive gifts subject to restrictions imposed by the donor?
32. What is the best method of cataloging a museum?
33. Should a museum issue publications of its own, and if so what should be their character?
34. Should a museum maintain a library, and if so what should be its extent and character?
- 35-50. Prepare a thesis of not less than 3000 words summarizing your views as to the proper organization of a natural history museum as regards (a) personnel (b) care of collections (c) exhibits, emphasizing especially that department which is covered by your specialty.

After the candidate has safely negotiated the above questions he is supposed to be able to pass muster in the following regard. He should have good health, ability to handle a horse and canoe, and be inured to the hardships of camp life and the work of exploration. He should be an expert proof reader, a good letter writer, something of a cataloger, and should have artistic taste and sound judgment. In discussing this question one of the correspondents says:

"Above all he should be a person of good education—the more the better—genial personality and good address, and of course of unquestioned character. It is also desirable that he be of good family connections, in other words he should be able to meet in a proper way, to interest and to please persons of wealth and importance who may visit the museum or be inclined to lend their aid to its development. He must have marked executive ability, a certain amount of diplomacy, and the power of making himself agreeable to the officers and assistants in the institution, so that harmony shall be maintained in the museum corps. I consider this requirement as very important."

Taken all in all the requirements are very exacting and the question is where such training may be secured. No school can give it, no one occupation and no one locality. It is such training as comes from a life of the widest opportunity made up of the combined contributions of home and school, of books and nature, of travel and experience.

It is without doubt exemplified in the attainments, character and work of many of the men who are now serving various museums in the country.

In the discussion following Dr. Crook's paper Professor Morse of the Peabody Museum, Salem, pointed out that much depends upon the size of the museum and the character of the position occupied. Dr. Crook explained that his intention was to indicate the preparation which might be expected of the young man going into museum work.

Other speakers emphasized various sides of the curator's work and the general opinion seemed to be that, while varied training and broad experience are essential in the administration of a museum, a successful curator must have pronounced natural gifts for this kind of work and that special tests as would be provided by examinations are of less value than experience and personality. Dr. Crook's paper was considered a very full and satisfactory statement of the ideal qualifications for museum work. The discussion was closed by the Chair as follows:

President Lucas.—"I believe the curator is born and not made. I do not believe you can train a man to be a curator. He is the result of the combination of natural ability and circumstances. He must be a man, as some one has said, who must know something of everything and everything of something. Such a man is difficult to find. It is not so much what a man knows, where he has been graduated, as what he can do; that is, what he can do to make the knowledge of others available and understandable by the public and his confreres."

The Chair then introduced Hon. Henry W. Hill, president of the Buffalo Historical Society, who extended a cordial welcome to the Association.

Mr. Frank H. Severance, secretary of the Buffalo Historical Society, then read the following paper:

HISTORICAL MUSEUMS

While I make no pretense to being a trained museum worker and really have little right to share in your proceedings, I am very glad of this opportunity to welcome you here in behalf of our institution. Your program has assigned to me the subject of Historical Museums and their Relation to the Museum Association. By way of preface to what little I may offer on that subject, let me tell you briefly something about the Buffalo Historical Society.

We are really an old institution, the Society having been incorporated in 1862. For many years its career was typically that of the usual historical society. It enlisted the interest of a few men and women in the community, but it had slender resources and for long periods scarcely attracted the attention of the general public. Throughout its earlier years, it occupied various leased quarters in downtown buildings. Its library and its museum gradually grew by gift. As time passed, there also accumulated a fund, principally from the bequests of generous friends who remembered it in their wills. So it happened that the Society had a considerable building fund and was debating the matter of procuring a suitable site and erecting a home for itself, when the Pan American exposition came along and changed all our plans. We owe it largely to Senator Hill, who is with us this morning, and to some of his associates who have passed away, that an arrangement was finally made with the State of New York by which a portion of the State's appropriation for the Pan American exposition should be set aside and combined with funds to be contributed by the Historical Society and the City of Buffalo, the joint fund from the three sources to be used in the erection of a permanent building. This in brief is what was done. This building where we are gathered was built in this way, its cost to date considerably exceeding \$200,000. The State used it as headquarters for its commission during the exposition, and at its close a formal transfer was made to this Society, which made some changes necessary to adapt it to its needs, and has since occupied it. All of this by way of explaining how we happen to be so well housed. It is proper to add that the City of Buffalo contributes to the maintenance of the property. Our institution is fortunate in its relations to the community in which it carries on such work as falls within its scope. The Historical Building has proved from the start a popular resort, due largely to the beauty of the architecture and the pleasantness of the surroundings.

Now, I have said that our museum in its beginning was the result of miscellaneous giving by well-meaning friends. From the beginning it has grown only by gift; the Society has never had funds for its systematic development by purchase of important collections. Our principal energies have been and now are put forth in other work—in building up a historical library, in collecting manuscripts, in lecture work with the schools, the public, and our members, and especially in carrying on the work of editing and publishing historical

volumes. Those of you who have looked about our rooms or glanced over the cases need not be told that the collection lacks many of the essentials of a well-systematized museum. In that respect I think we are neither worse nor better than the average historical museum.

Speaking from a knowledge of several of the historical institutions in this state, I feel we are not wrong in saying that, with the exception of two or three, notably in New York, there is not in all New York State a historical museum which approaches the ideal as it should exist for any neighborhood. My conception of the ideal historical museum is that it should present by logically arranged collections such relics of the different periods in the history of that region as may be preserved. We would, of course, always begin with the utensils and weapons, and other reminders, of the Indians; then should follow articles typical of the pioneer period and of each succeeding period, illustrating the condition in that particular locality. The range of articles may be gradually extended within the historical field; portraits and maps, and all printed records, are essential to such collections. Many localities would have collections peculiar to their own region, according as that region has developed special industries or shared in some peculiar way in the general history of the state or nation.

It is of course much easier to specify what an ideal historical collection should be than to find it. The historical societies themselves present a great variety in development, resources, and object. A few of them are financially well off, owning their own buildings and engaging in various works usually in the way of publishing historical records or of carrying on courses of lectures, either for their members or in connection with the schools. Oftener, however, the historical societies, so far as I know them in this state, are not able to do such work and are content to do much less. Some of them have very meager possessions, often in a community quite indifferent to their aims and desires. Often the historical organization in a county is little more than an annual farmers' picnic, which brings together the older people, fond of reminiscences and of keeping alive the memory of an elder generation. More than one historical society in Western New York is known only through such occasional gatherings, the reports of which are published in the local paper. Of a different character, and within its field and opportunity fulfilling, I think in a most happy way, the aims of a historical organization, is such an institution as the Livingston County Historical Society. With no considerable

funds, yet under the guidance of a judicious and enthusiastic spirit, that society brought about the erection of a log cabin which stands in the village green or park in Geneseo, and is the depository of a most interesting collection of the pioneer relics and relevant articles, all bearing more or less on the early history of that community. Such a building and such a collection are very real teachers of history and serve better the purpose for which they are maintained than do the resources of many a large and better endowed institution. These instances sufficiently illustrate the varying character of historical societies and of their museums.

To a scientifically trained mind, most museums of historical societies must appear, I think, hopelessly heterogeneous. The most incongruous collections are preserved because, perhaps, they are the gift of some friend who wishes his cherished relics to be kept together, marked with his name. I do not think, however, that the situation is quite so bad as it appears. Granted trained curators or even a fair amount of time by attendants of ordinary intelligence, and the worst of our historical collections could readily be systematized and made to teach. Here, I think, is the keynote, the clue, for improvement. Those who are responsible for historical museums should be able to recognize the difference between relics and rubbish. There must be something about a relic which teaches. It must recall in some degree the conditions of the vanished period to which it belongs. If it does not do this, out with it! With this standard of elimination and knowledge enough of the history of our country to enable the custodian to bring together articles of the same period, there is no difficulty in putting even the most meager collection on a historical and scientific basis of classification. Of course, where the articles have come only by gift, and that means by chance, there can be no uniform representation of the different periods which the museum should cover, but even a scientific collection is not the less scientific because there are great gaps in it, if what is shown is properly classified. Such I think may be the case with a museum which undertakes to recall by relics the history of a town or a larger community.

These ideas, then, of elimination of the worthless, and the systematizing of the valuable, are the ideas which historical museums need to imbibe and to carry out. They would get inspiration in this work from association with this organization. If you have in view the affiliation of our historical societies, I suggest the appointment of a committee which shall report at your next meeting on the existing

societies which maintain museums of sufficient resources to enable them to share in the work of this association. When this preliminary survey of the historical museum field has been made, the next natural step will be to invite the coöperation of these institutions. That they all can profit from such association in your work is I think beyond question. I know of no institution which has more to gain from such coöperation than our own here in Buffalo, which has the honor and pleasure of welcoming you to-day.

Secretary Rea.—"I am responsible for asking Mr. Severance to open this discussion, and for this I feel that I am open to congratulations. As a matter of fact the discussion was forced upon me by the investigations which I have been conducting in the effort to compile material for our directory of museums. I have been waiting with a great deal of interest to see what Mr. Severance's ideas would be, as to whether they would conform to or differ from the ideas which I had formed as a result of my experience, and I am interested to find that they agree almost completely with the conclusions which I had reached. I have been impressed, first, with the fact that there is a very large number of historical societies in this country; that in many states there is one in every county; and that this undoubtedly means that there is in the community a very general appreciation of the desirability of a certain amount of historical work. Mr. Severance has very well pointed out that many of these societies have no permanent home. Comparing them with other institutions of various kinds in the country, they are among the most difficult to reach by correspondence that I have ever known. More letters come back from postmasters when directed to historical organizations than to any other class of institutions that we have corresponded with. When letters presumably reach some one, having failed to come back, a very large proportion elicit no reply, showing that there is not a sufficient organization to secure the delivery of a letter to the right person, if there be a person who is in a position to answer it. Furthermore, if one succeeds in getting the information, it shows that while a considerable number of these societies maintain some collections, they are, as Mr. Severance has said, haphazard, the result of gifts which have not been systematic, and there are seldom funds for their proper development. This presents to us the question whether there is work for this Association in connection with these museums. Does

the fact that little money is available for their development mean that there is not a field for our coöperation? I scarcely think that can be the case, because the number of societies is so great as to indicate a general interest in history. Is it possible that historical organizations have not fully appreciated their possibilities and have therefore not directed a sufficient amount of attention to their development? If this happens to be the case, can we assist them in so practical a way as to secure their coöperation? If there is a field for historical museums, what is that field? Here I find that the principal expression in the directory returns is the one word 'relic' as representing history. Now, I am not a competent person to speak on historical collections or historical work, but I am very curious to know what the significance of a relic is. As a scientific man interested in natural science, it appears to me at first thought that there are two points of view with regard to historical objects. One is that these objects may preserve a record or an indication of past conditions which are being rapidly taken beyond the reach of easy investigation. In other words, every object which will tell us something with regard to the life and work of past ages seems to be of historical importance. In my natural history museum I have certain objects which have crept in because there was no other place to put them. They include a very remarkable specimen—a specimen with a very remarkable label, perhaps I better say—'Part of a tree under which Columbus said mass when he discovered America.' Another specimen which I have is a scythe blade used as a sword by Marion's soldiers in the Revolution. To my mind as a scientist this tree under which Columbus said mass is of little value except as showing the distribution of a certain species of tree, or as indicating the religious practice of Columbus. The use of a scythe blade as a sword, however, is a very interesting indication of the conditions under which Marion operated in the Revolution, and as such it seems to me to have a very distinct historical significance. The other idea which has impressed itself on me is that there is a possible value of the relic. If some one gave me a copy of the *Origin of Species* which had been used by Charles Darwin, I should treasure it as a book of interest in my library; yet if the copy were not annotated, I do not know that the handwriting of Charles Darwin would increase the value of the book, except by way of sentiment, and I am perfectly prepared to recognize the value of objects which may serve as points of focus for sentiment and historical interest. But there, it seems to me, we

must draw a very careful line between what I might call the trivial relic and the respectable relic. Some institution told me that it had—I hope I am not quoting it a little too strong, but it was something like—‘a hobnail from the shoe of the grandfather of Abraham Lincoln.’ I do not know whether there was enough of it to show anything about the kind of shoes that were worn in those days, and I do not believe there is any sentiment worthy of the name to be attached to a hobnail upon the shoe of the grandfather of Abraham Lincoln, and I would like to know from any historical workers present what they consider the dividing line between these trivial relics and objects which are really of historical significance. In small collections the relic predominates and serves no very practical purpose. In extensive collections a certain number of these small relics may well contribute to the general effect of an exhibit. There is a museum at Nantucket which is devoted to the history of that most interesting island. It has accumulated a very large amount of material relating to the entire period of Nantucket history. The collection is arranged, generally speaking, in an admirable manner and I consider it one of the most interesting historical museums I have seen.

“I think the presence of relics in such large numbers in historical museums is due to the chance method by which they have been acquired, as Mr. Severance has indicated. It was said a moment ago that one of the functions of a museum director was to keep things out of museums. In scientific museums there is a certain amount of scope for the exercise of that ability. In art museums I suppose that there is much more. I apprehend, however, that the authorities of a historical institution have a still more difficult task, in that they will offend some of the best old families of the town if they decline to receive these venerated relics, and I wonder if a general consensus of opinion derived from coöperation with an association of this sort might serve to stimulate the development of a more critical feeling with regard to the acquisition of such material. These are just some of the ideas that have come to me in gathering together material for this directory and in the effort to consider how our Association may extend an influence to improve historical museums and make itself more completely an exponent of American museums of all classes. I hope there will be a free discussion of these points that Mr. Severance has brought out.”

Dr. Charles F. Millspaugh (Field Museum of Natural History).—

“I could not consider myself, probably, worthy of speaking upon this

subject of historical museums, but it has just occurred to me that something that was said last night might possibly have a bearing here. The label was spoken of as the first and primary object in a museum installation. Now, I can see in this hobnail a splendid illustration of many things that come into the historical museum. Combined with a label that would place the great-grandfather of Lincoln before the people, give some idea of what he did for history, I can conceive that a hobnail could have an excellent office in the historical museum. Many of these objects have crept into the museums. If we could display them in such a way as to point to historic events, these objects should be of value to a historical museum. In examining such museums I have found that the labeling was more inefficient than the objects themselves."

Prof. Edward S. Morse (Peabody Museum, Salem).—"In the historical museum at Salem it is very difficult to draw a hard and fast line as to what objects are of interest and what are not. I remember in the collection there a pair of little mittens. The label reads: 'Worn by Dorothy Mills at the funeral of her grandfather in 1802. She not only wore the mittens but a black dress, and when only three years old she walked to the grave of her grandfather.'

"The picture that brings up of a little infant three years old with a black dress and black mittens traveling to a grave and back again is of interest; and so this hobnail simply shows that Abraham Lincoln had a grandfather. We were not quite sure he went back so far as that. (*Laughter.*) I do not know where to draw the line. Boys collect all sorts of things. I had in my relic cabinet a piece of George Washington's dress (of course it never was worn by George Washington); also a spike from a shipwreck. But that rusty old spike brought up the sea and the terrors of navigation more than a whole novel. So I take these things, although we may laugh at the audacity of it and think them of little intrinsic value or interest in history. How to arrange the material I do not know. We have definite classifications in zoology—the vertebrates and mollusks and articulates and so on—but when we come to collections of boot-jacks, coffee mills, and forty thousand other things, I do not know how we are going to classify them."

Mr. Charles Louis Pollard (Staten Island Association of Arts and Sciences).—"It seems to me that Mr. Rea has made a very careful discrimination between relics which may be considered historically important and those which we relegate to the limbo of the curious.

A gentleman who had visited some of the southern battlefields of the Civil War brought back a collection of miscellaneous trophies which he came and offered to me, the fragment of a shell, a battered pewter coffee pot, and various other objects, and on top of them placed an envelope with a great deal of reverence. I asked, 'What is this?' He said, 'That is a little of the iron rust from the monument on the battlefield. I couldn't bring the monument so I brought that.'" (*Laughter.*)

Mr. Louis Earle Rowe (Museum of Fine Arts, Boston).—"If I might offer one illustration in addition to what have been mentioned, I would like to refer to one which is to be found in the Rhode Island Historical Society's collection, where they have a fragment of an apple tree root which at some unknown period entered the grave of Roger Williams. There is a very extensive label on this object which calls attention to Roger Williams' grave, which of course is revered, and goes on to say that the apple tree grew near the grave; that the root grew down into the grave and starting at about the neck extended down the length of the body, and when they opened the grave this root was found following the lines of the body, even to the bending of the foot. They have other things relating to Roger Williams which are much more valuable. I merely refer to that as a sample of what sometimes gets into our collections and as bearing on what Mr. Rea has said."

Dr. John M. Clarke (New York State Museum).—"You cannot do very much by a general discussion of how historical materials are to be classified. They may be classified as Professor Morse would classify his vertebrates and invertebrates, or they may be classified historically by their proper periods; but aside from that, there are a vast number of small local societies—in New York, as Mr. Severance has said, we have thirty or forty—who care nothing about the existence of this organization, who probably for the most part know nothing about it, who certainly will not pay two dollars or three dollars a year for participation remotely in these meetings; and yet I am very earnest in my belief that they ought to be brought in some way into connection with the many phases of activity which this organization is bound to attempt as time runs on. Here is a serious proposition, and it is something that cannot be determined on an occasion like this. It is all right to affiliate with large historical museums like the Historical Society of New York City, the Long Island Historical Society, the Buffalo Historical Society, and the

New York State Historical Society; but I am speaking now of the local societies in the smaller communities, and of our coöperation in vital things which they have taken up in the past and which represent a great deal of value as far as they are concerned with the accumulation of local relics. The oriental tourist who has come back and presented these societies with collections has not added very greatly to their interest. Now, I propose, Mr. President, that we take this occasion to consider the wisdom of appointing a committee who shall take under advisement the problem of dealing with these local historical societies; not that they shall be called upon for an immediate or early report, for there are difficulties here that cannot be overcome if it is really the desire of this organization to bring these local societies within the sphere of its influence and to get from them some concern in our activities. I put this, then, in the form of a motion that the President be authorized to appoint a committee of three to consider the possibility of mutually advantageous coöperation between the Association of Museums and the many local and other historical societies in this country."

President Lucas.—"The motion is that a committee be appointed to take such action as may be necessary to formulate a plan for coöperation with local historical societies." (*Carried.*)

Mr. Herbert E. Sargent (Kent Scientific Museum, Grand Rapids).—"One phase of this question which has interested me a great deal because I am constantly meeting it is the personal element. A great many of the people we wish to reach, whom we wish to raise to a higher level, are interested in the sentimental part of this question, and if we can cater a little to their interest without interfering with our higher work by showing to them in an inconspicuous way the relic, as we call it, we can enlist their interest and lead them on to something which is higher. I find that that is a very important thing in the smaller institutions. If our museums are to cater entirely to the interest of those who have developed tastes along this line, that is one work. If they are to cater to others and cultivate an interest which will elevate the public, that is another. I believe personally they can do both."

Miss Delia Isabel Griffin (Fairbanks Museum of Natural Science, St. Johnsbury, Vt.).—"The museum at St. Johnsbury has made an effort to systematize its historical collection. Being a natural history museum we have no right to a historical collection, yet since we have a field rather rich in a colonial past we felt we could not pass the subject

by. Having an unoccupied room, we simply put a few cases into it and began asking our friends to bring in the historical objects which they had. As a result we have accumulated, in the last two years, very good examples of the old colonial china of the region, about four hundred specimens, entirely in a loan collection. Of much more value, we have an exhibit of methods of lighting in colonial days, lanterns, old pewter lamps, and all kinds of candle-sticks. There is another exhibit showing all the implements used in making wool garments, another showing everything used in the making of cotton and linen, particularly linen garments from the flax, and another which shows the articles used in the preparation of foods, and old Dutch ovens, fireplace ovens, etc. So we have formed an exhibit that is extremely interesting and have had no difficulty in getting all of it without the expenditure of a cent of money."

Mrs. J. K. Freeman (Buffalo).—"I think in every community there are a great many things of value and interest that people have and are glad to give to historical museums if they know the exact lines along which the museums wish to form their collections and the kind of things they would like. A great many people really do not know what they have of value until their attention is called to it. I think this is so in this community and in every community."

The committee appointed at an earlier session to prepare resolutions regarding the preservation of objects of historical and archeological interest then presented a report which gave rise to considerable discussion which was not concluded at this session.

The Association then adjourned for luncheon at the Park Club.

SESSION OF WEDNESDAY, JUNE 1

Afternoon

The meeting was called to order by President Lucas, in the lecture room of the Albright Art Gallery, Delaware Park, at 3.30 p.m.

President Lucas.—"It is scarcely necessary to say after Miss Sage's cordial greeting to each and every member, that we are to make ourselves at home here, but I am commissioned on the part of Miss Sage to say that we are most welcome; that the Museum with all it contains is ours, but we are not to take away any specimens."
(*Laughter.*)

Mr. Louis Earle Rowe, docent, Museum of Fine Arts, Boston, then presented the following paper:

A GALLERY LEAFLET FOR ART MUSEUMS

It is not the purpose of this paper to revive the much discussed subject of labeling, which is of necessity always demanding notice, but merely to call attention to a form of the well-known leaflet which has been devised to answer the requirements of one of the largest art collections in America. It is not to be expected that this gallery leaflet will meet with immediate approval, but an explanation of its form is offered in the hope that it may arouse discussion and show the possibilities latent in its general idea.

The problem in the case of the art museum is slightly different from that of the natural history museum. Its prime interest is to show the qualities of its works of art as such, and secondly to call attention to the light which such monuments throw upon the life and spirit of the times. We will grant that it is necessary to know what the object represents, its date, and the name of its creator. But is it necessary as well to place on a label, "Landscape" or "Head of a Man" when a visitor can see that for himself, provided always that the location, or the man's name is not known to the museum officials. Is it not rather necessary to explain why such an object reflects the spirit of the age in which it was made? This knowledge surely we cannot expect in the ordinary visitor to an art museum. And finally, can all of this latter information be printed on a label which will be legible and yet in scale with the object on which it is placed? I am not so sure that we would not admit that labels are in a sense disturbing extraneous features if we are considering objects as works of art solely. The difficulty lies, then, in devising some form of descriptive matter which will not draw attention away from the object, which can be legible at the proper distance for seeing the object, and which will explain the value of the work in itself, and its relation to the other objects in the department. One answer is found in the form of gallery leaflet which will be described.

The gallery leaflet as proposed in the Boston Museum has the following features: The first page has the name of the department and of the room; the second page has a representation of the room, either in ground plan or photograph showing the objects in their relative positions. The next few pages contain descriptive matter under the

various numbers. This arrangement gives more explanation than a label can possibly give, unless the label becomes a positive disturbing feature on the pedestal or frame. It is possible also to add the size of the object, the name of the donor, the material, and some notice of the treatment. It is obvious that some objects admit of fuller explanation than others so that the length of the description varies with the importance of the object. The next page following those with the descriptive matter directs the visitor to the department office, informs him about the possibility of seeing and using the supplementary collections, and offers the aid of the person in charge. It also directs the visitor to the library where more general descriptive matter may be obtained, and gives the location of maps, photographs, or stereoscopic views which may be seen and used. (Concerning the stereoscopic views, let me say that the Egyptian department of the Boston Museum has placed in its office as apparatus a full set of Underwood and Underwood's views, with the book and maps compiled by Professor Breasted of Chicago. They are of the greatest value in giving the setting of the objects and the characteristics of the country. Other museums will be using them as soon as they realize their importance.) After this type-written matter are placed back numbers of the Museum Bulletin which contain publications of any of the objects in the room. This in general is the idea of the form of gallery leaflet.

It is obviously quite impossible to show all of its adaptations to the requirements of all kinds of collections, but a few words about its value in a gallery of paintings might be of interest. Few galleries in an art museum are changed as often as those containing pictures. The hanging of special exhibitions, or new loans, purchases, or gifts, render any attempt to issue a complete catalog of what is on the walls quite impossible, for one room out of the series is certain to be changed. In this case the catalog as issued is incorrect, and it is well-known that the visiting public do not enjoy purchasing catalogs which are misleading. To reprint such catalogs as often as changes occur would create an expense heavier than most museums would care to incur. But if each room had its own small leaflet, the reprinting would be quite inexpensive, as it would be a matter of a few pages only. This would be all the easier if the description of each picture, when a satisfactory permanent form had been determined upon, were electrotyped. In this way the cost of printing could be still further reduced. If a gallery leaflet of the kind proposed were used in a picture gallery,

the representation of the walls would of course show the location of the painting. In case a drawing was made, the plan of the walls could easily be projected into the horizontal plane, and thus determine the location of the object. I think that it will be agreed that almost always the distance at which the visitor must place himself to read the printed label on a frame is not the proper position to see a painting. This is especially true if we try to keep the label to a size in scale with the picture. Again, if a gallery has so many paintings that it has to skip any of them, the difficulty of reading the label is increased greatly. All of these difficulties and many others can be overcome by means of the gallery leaflet.

I regret that there is not time to show more of the favorable points of such a small publication, but I should be glad to answer any questions at any time about a form which was developed after studying the visiting public at first hand for a number of years, answering their questions and endeavoring to make the collections an educational force.

In closing let me say that at present the Boston Museum is using typewritten gallery leaflets of the type described, supplementing the labels where such have met the requirements of the principles back of the institution, but that the printed form will doubtless come later. When the form is printed, it may be found advisable to leave the last page blank, with a note at the top saying that the page was reserved for the visitor to use for individual notes, should he care to make any. This is a habit which it is the duty of any museum to foster to the highest possible extent.

In response to a question Mr. Rowe stated that the gallery leaflets are used at present in typewritten form not to be taken from the room but that it is expected to have them printed for distribution in the near future. The discussion was closed with the following remarks:

Miss Elizabeth M. Gardiner (Worcester Art Museum).—"Mr. President, I would like to say one thing in connection with Mr. Rowe's paper. The form he describes is substantially the form used in a number of the smaller museums abroad, only instead of a typewritten leaflet, they have fans scattered about the room with printed information about each picture on the fan. One holds the fan in the hand and goes about from picture to picture and reads from this fan-shaped placard the information. I have found it personally quite the most satisfactory and comfortable way of seeing a small gallery, where I did not have a catalog."

The following paper was then read by Miss Elizabeth M. Gardiner, assistant to the director, Worcester Art Museum:

THE LIBRARY OF THE SMALLER MUSEUM

In presenting to you some of the questions that have arisen during a year's experience as librarian in the Worcester Art Museum, I want at the very outset to disclaim the authority which would come from professional training. Library work is not my metier. But the branch of it which has fallen to my lot is still so new that I believe any intelligent effort at formulating its especial problems and offering for them solutions based on practical experience will be of service to other pioneers in the same line. The conclusions may be wrong but a wrong conclusion based on concrete facts makes a better starting point for a discussion than vague and cautious generalizations.

The question which faces us first is one whose answer has been assumed in the title of my paper: "Does the smaller museum really need a library? Its income is not large; why not concentrate it on collections?" The answer of any of my own colleagues would be, I know: "The library is needed both by the public and by the staff."

The public who already visit the museum will find it an aid to more complete enjoyment of the collections. The purpose of an art museum is of course to afford its visitors the refreshment and uplift of beauty, but if we can add to the first vague, inarticulate response to lovely things a power of discrimination, of analyzing a given object and weighing it against other objects, we have made the pleasure a hundredfold keener. Such discrimination must usually be developed by teaching, and no small museum offers a range of originals wide enough to teach from. I can point as yet to but one or two instances within my own experience where an individual has deliberately sought the library to round out some impression gained in the galleries; but when the library material is brought to the people as illustrations for a lecture, they receive it gladly.

Besides serving the public who would naturally visit us, the library acts as a lure to groups whom the originals alone might not attract; clubs studying some special line not adequately presented in the original would gladly make the museum their meeting place, if it had material in the way of books or photographs. For instance, our own Woman's Club this year studied German art, of which we

have no examples. Had we had proper reproductions available, they would have met with us monthly, and thus have formed the habit of dropping in from time to time to look at our own collections. The same rule applies to the schools, particularly in the history and literature courses. They would turn to the library for illustrative material, and once inside the museum could not fail to stray into the galleries. That this is what actually happens may be seen from the experience of Boston and the Metropolitan and from the relation of other departments to the art library at Wellesley College.

The library is helpful to the public; for the staff it is essential. The director and curators need apparatus within easy reach to help in making attributions. They also require at least the leading periodicals in foreign languages as well as in English to keep them in touch with the art movements of the day and foreign periodicals of special technical character cannot be found in the public library of a small city.

The docent (or, where there is not a docent, the director or curator when he turns to teaching) needs material to refresh his memory and fill in gaps in his supposed omniscience. The keeper of photographs (where there is a photograph collection) must have reference books for help in cataloging. I hardly need enlarge; you all in fulfilment of someone of these offices have either rejoiced in a good library or fumed at a poor one; and you know the difficulties of depending on a public library for books which often may not circulate or if they may be doing it so effectively as to be quite out of reach. We ourselves, though our public library is unusually well equipped and generous, have been obliged more than once to make the forty-mile trip to Boston for material to help in determining, say, the period of a Greek terra cotta or the genuineness of an old Flemish painting.

Aside from the performance of official duties, members of a museum staff who are worth keeping are likely to have ambitions for independent study, and they can hardly be kept permanently at a half-day's journey from a good library.

For the sake, then, of the public, whether as a supplement to interest already aroused or as a means of creating interest, and for the sake of the staff, at least in the performance of its official duties, the library is needed. But the resources for securing it are small. The purchases must at first be limited to essentials. The next step in our inquiry is to determine these essentials.

It will, I think, be generally agreed that the first rank must be given

to good reproductions (photographs or collections of plates). They offer for the studious public and for the staff the closest substitute for direct approach to originals which are out of the reach of some of us all the time and of all of us most of the time. Moreover in a smaller museum, especially a university museum, they may and often do, form a reservoir from which to draw very attractive temporary exhibitions. An adequate nucleus for a collection should consist of representative examples of the sculpture of Egypt, Greece, Rome, and France in the Gothic period; painting of Italy in the trecento and Renaissance; of Holland, Belgium, and Germany in the sixteenth and seventeenth centuries, of England and France in the eighteenth and nineteenth; also enough typical examples of architecture to furnish the setting for the two great decorative arts. If wisely selected it need not consist at first of over 3000 plates; once formed it would easily be enlarged by completing the work of single men or periods as occasion required. We shall see later that, though the number of the nucleus sounds formidable it could be acquired in the course of two to three years, at an expense of \$600 to \$900 per year.

But the photographs will not be serviceable unless properly installed, labeled, and cataloged. For this a small working library is necessary and we may well base our first purchases of books on the needs of the photograph department.

For adequate labeling (it must be borne in mind that the public will read what is written on the back of the photograph where they will not take the trouble to consult books) the first requisite is a set of good general histories of art. For example the field of Italian painting is pretty well covered by Crowe and Cavalcaselle; for the northern schools through 1700 Kugler-Crowe answers passably. For Greek sculpture E. A. Gardner's *Hand Book*; for the medieval period Michel *Histoire de l'Art* and Venturi *Storia dell' Arte Italiana*. These should be supplemented with museum catalogs and, for countries like Italy where the catalogs are often lacking or untrustworthy, by such general lists of works attributed to given artists as may be found in Berenson's series, Lafenestre or the Burckhardt-Bode *Cicerone*. A complete set of up-to-date Baedekers is also essential.

Furthermore as many of the public are eager to learn "who's who in Heaven" the cataloger will want standard works on Iconography. The field for classic and Christian art is pretty well covered by Smith, *Dictionary of Greek and Roman Mythology* (Roscher is of course better but is incomplete), Mrs. Jameson *Sacred, and Legen-*

dary Art, Lowrie, *Monuments of the Early Church*, Didron, *Christian Iconography*, and Mâle, *L'Art Religieux du treizième Siècle en France*.

The reference books, catalogs and iconographical works suggested will be enough to begin on, though the identification of doubtful photographs will be rendered easier by the addition of inexpensive monographs containing reproductions of the entire work of a given painter, such as the *Klassiker der Kunst* and *Kunstlermonographien*.

All of the books already mentioned are useful not only to the keeper of photographs but to the director and curator. The latter will, however, need a supplementary list of special technical publications with good reproductions along lines where photographs are hard to secure or where color is a strongly determining factor (as in the case of Oriental rugs, Chinese pottery, or Greek coins). The purchase of such books may of course be delayed until the special occasion arises, yet if a collection of standard publications is begun early, valuable time may often be saved in emergencies and works in limited editions secured before they acquire those mystic letters "o. p."

The director who is buying old masters will also from time to time ask his librarian to complete the reproductions of some painter already represented in the library or add examples of a minor man in whom he is at the time especially interested.

For periodicals he will require as a minimum, current numbers of one leading English, German, French, and Italian art review of the more scientific sort, of the *American Art News* and the *Repertorium für Kunstwissenschaft* and, if his museum has a classical department, of the four of five official national organs for classical archeology.

For the general public, selection involves a more difficult problem. Of the books useful as staff apparatus, some, the foreign periodicals and museum catalogs, will probably not interest them. They will use the general reference books now and then and the illustrated monographs often. Beyond that, some will turn to us for light on deeper aesthetic laws underlying our paintings (a favorite question is: "Why did Whistler paint 'Fur Jacket's' skirt with those vague daubs? You can't tell where the dress ends and the floor begins; is that natural?"). Others again will demand an appalling quantity of general information only remotely bearing on the contents of the museum. One good lady telephoned me recently to find out what material we could offer on "bells." I was about to suggest that Mrs. William James (our delightful Hogarth lady) and Mrs. Perez Morton (a pet Stuart of mine) might serve her turn when she added, "bronze

ones, you know!" One would like to satisfy all this laudable curiosity, but if the funds are limited so that one must draw a line somewhere I should advocate sending the lady of the bells to the public library, while I should provide for the puzzled student of Whistler some of the really stimulating guides to appreciation; Bode's *Great Masters of Dutch and Flemish Painting*, or Kenyon Cox's illuminating little studies in *Old Masters and New*, or Birge Harrison's *Landscape Painting* will show you the class of work to secure.

Our book collection, then, will consist of a nucleus of standard reference books, catalogs and Baedekers. To these will be added for the staff, monographs and series of plates of a more technical character and a good set of periodicals; for the public a few of the finest essays in criticism.

Is such a collection within the grasp of a small museum? The following summary may help to answer the question:

| | | |
|---|----------|-----------|
| (a) Photographs. (The recommended number of 3000 to be acquired in two years:) | | |
| 1500 photographs, average 35 cents..... | \$525.00 | |
| 1500 mounts, average 15 cents..... | 225.00 | |
| Library supplies for the photos, cards, accession books, cases, press-board, etc..... | 150.00 | |
| | <hr/> | |
| Total photographs (1500)..... | | \$900.00 |
| (b) Books. | | |
| Those needed for the librarian (the 111 vols. of catalogs, etc. now in the Worcester collection serving as basis for the list)..... | | |
| | \$370.00 | |
| 40 supplementary vols. for the director and the public | 230.00 | |
| Binding..... | 50.00 | |
| | <hr/> | |
| Total books (150)..... | | 650.00 |
| Periodicals..... | | 80.00 |
| Installation of books | | |
| Case, 25 running feet shelf space (6 vols. per ft.)..... | \$40.00 | |
| Table..... | 40.00 | |
| Periodical rack..... | 15.00 | |
| Catalog case..... | 15.00 | |
| Accession book..... | 10.00 | |
| | <hr/> | |
| Total installation..... | | 120.00 |
| | | <hr/> |
| | | \$1750.00 |

That is, all the books and absolutely necessary equipment for the first nucleus and one-half the necessary photographs can be bought at an expense of \$1750.

But those of you who are here to-day will appreciate the fact that the mere price of acquisition by no means represents the entire cost to the museum of any of its possessions, whether books or pictures. To be rendered available to the public and guarded against possible misplacement, each object requires human labor in recording, arranging and cataloging. So the next problem is the library force, what qualifications shall it have and how much can one person put through in a given time.

The accomplishments actually used by a typical museum librarian are: a reading knowledge of French, German, and Italian; general acquaintance with the history of art; enough special training in archeological methods to enable him to weigh authorities and estimate at a cursory glance the value of a new book. Such attainments would be developed by a college course, a year of graduate study, and six months or a year of library training, and would command at minimum a salary of \$1000.

The actual amount that could be accomplished by a well-trained worker in a year may be estimated somewhat as follows: The museum year consists of about forty-six weeks of five and one-half working days each. Omitting all purely mechanical processes, (i.e. book plating, cutting leaves, and pasting on labels, which can be done by an untrained boy) a safe average estimate for the number of books which can be prepared for public use is twelve per six hour day; of photographs, seven to eight, (these estimates are prepared on data furnished by the Metropolitan, Boston Museum, and Wellesley College art library). On this basis, 1500 photographs would require about one hundred and ninety days work; 150 books about thirteen, while the remaining fifty days would be more than filled by correspondence, the making out of order lists, arranging books for the binder, and keeping in touch with the public.

That is, the time of one trained person, with a little untrained assistance would be fully occupied in the care of a library that added to its collections 1500 photographs and 150 books per year.

A museum of modest means can then, form a library which will be of service to its visitors and offer its staff at least a respectable minimum of equipment for their official duties at a total expenditure of \$2750 per year.

Where that sum seems unattainable, the rate of acquisition could be divided and its labor furnished by a person who might act for half time as docent or general assistant to the director. For a larger

institution it will be easy to increase the rate and scope of acquisition and the members on the staff, but whether the library increase slowly or rapidly, the principles that govern its formation are the same.

- (a) Photographs or reproductions are of the first importance.
- (b) For the books, when you have selected those useful in cataloging the photographs, you have already gone far toward supplying the needs of director, curators, and public.
- (c) Last, but emphatically not least, remember that the amount of material which can be prepared for public use by a given person in a given time is limited.

Mr. Louis Earle Rowe then presented a paper by Mr. Benjamin Ives Gilman, secretary of the Museum of Fine Arts, Boston.

MUSEUM REGISTRY OF LOCAL ART

In the paper on "Museums and the Conservation of Monuments" read at the last annual meeting of the Association in Philadelphia, May 12, 1909, it was proposed that each art museum in America should undertake to prepare and maintain an inventory of the works of art outside its walls which are interesting and accessible to its public and to promote the enjoyable and profitable study of them by all. In pursuance of this suggestion the Museum of Fine Arts in Boston, in the following October, announced its purpose to undertake such a registry in a circular addressed to a number of persons responsible as guardians or owners for important buildings, statues, pictures, and other works of art in public places in Boston, the list including representatives of the United States, state and city governments, colleges, and religious and artistic organizations. The announcement was cordially received, the only doubt expressed by any of those replying being whether the objects in their keeping merited this recognition. The Museum was quite prepared to find that this doubt was justified in some cases and quite prepared as well to find it not justified in others. The pressure of work incident to opening the new Museum building in November prevented for a number of weeks any further active effort in establishing the Registry. The initial step in the realization of a purpose completely new to most people must consist largely in verbal explanations of the plan, and such explanations are very costly in time and trouble, demanding much correspondence and

conversation. Within the past few months active steps have been taken to fulfil the design and an immediate report upon the results to the Association before which the idea was broached is in place. There is nothing but encouragement to tell of, and if other museums are contemplating the step, they have a right to know at once all that can be said of the plan.

The comments of the press have been distinctly favorable. There seems to be a general feeling of satisfaction, if not of relief, at the thought that a class of permanent institutions already devoted to the widest interests of the public should have espoused the cause of the people in this necessary particular. Three months after the meeting of the Association at which the plan was first proposed the *Museums Journal* of England, in reviewing a book on "The Care of Natural Monuments" by the director of the Dantzig Museum, expressed its surprise that Dr. Conwentz made no mention of museums among the agencies of their protection, continuing: "It certainly seems to us that the local museum of the district would form a very fitting headquarters for work of this character," and concluding: "Not to urge the point too far, the least suggestion we can make is that the officials of our museums should without delay get into touch with the nearest local association for the preservation of natural monuments." The same journal, in reviewing our *Proceedings* in the issue of March, 1910, refers to the plan of the museum registry of local art as in line with this recommendation of its own and heartily welcomes the suggestion, adding that "It may fall on more fruitful ground on the other side of the Atlantic, where museums have a more open field." In Germany the *Kunstchronik* of May 13th last speaks of the plan as an especially praiseworthy innovation in museum methods and goes on to say: "It would be a real blessing if this novelty should be taken up also in other states of the Union." A private letter from Dr. Grosse, director of the Freiburg Museum, expresses his thorough-going sympathy with the proposal and the views on which it is based. The New York *Nation* speaks of the Registry as a new service "which might well be adopted by museums of all kinds. Like most new ideas this is a simple and obvious extension of the usual duties of a museum." This coincidence of favorable opinion is of good augury. It indicates that the proposed function of the Registry of Local Art may open to museums an opportunity of wide usefulness.

The methods of the work as thus far developed at the Boston Museum are very simple. A representative of the Museum calls by appoint-

ment at the public building, church, or other place where there are objects to register and with the guardian or owner goes about taking notes of the works of art as they are pointed out to him. These hasty notes are supplemented later by further visits, by consultation of the books in the Museum Library or with the officers of the Museum. The data obtained may include documents furnished for safe keeping by the guardians of the works registered and these may include photographs or other illustrations. For the former we have adopted the usual filing system and for the latter a strong box large enough to contain the largest views and which it is planned to keep in the strong room of the Museum. The essential data regarding the works of art are contained in a card index, a serial number being assigned to each entry. The series consists of successive thousands each prefixed with a double letter, AA, AB, AC, etc. Such a series would furnish a far larger number of different designations than the Registry would ever need to use. The folders in the files bear the designation of the index cards referring to their contents. The index cards which we recommend are four by five and seven-eighth inches, somewhat larger than the usual library size and are typewritten in duplicate to form two indexes arranged by guide cards, one according to the artist or school, and the other according to the owner. The notes added at the Museum are expressly understood not to refer at all to pecuniary value. The Museum considers this question aside from its proper artistic function and moreover is not in the way of knowing prices. The purpose of the notes is to put at the service of the guardians and owners, and through them of all who consult the Registry, whatever sources of information the Museum controls. They do not aim to embody final opinions on the objects, but in all cases bear the unwritten proviso "as at present advised."

The record on the index card includes a dating stamp showing the date of the registry, and on the object itself a small parchment seal bearing the number of the object may be affixed as a registration mark.

On the question—what shall be registered—it is made clear that the Museum does not inventory property, however valuable pecuniarily or historically, but only such objects as in its judgment have artistic interest.

Looking at the plan in its larger aspects, it opens a wide horizon. Public museums owe their origin to the nationalization of royal collections. It seems but a further step along the same road for

public museums to include within their scope any outside objects, or collections, of art which states, municipalities, or private owners may commend to their attention. Under this arrangement these outside objects, whether they remain in place or are from time to time seen in the Museum, become practically museum loans, its interest in their exhibition is the same as in its own possessions. Institutions originally the outcome of the nationalization of kings' treasuries have it in their blood to meet the wishes of any other owners who may at any time desire publicity for their treasures. Through the Register of Local Art the loan exhibition may become a field of far greater importance in the economy of museum administration than it has been in the past. The signs point that way. There is scarcely a season when in some exhibition of Rembrandt pictures, Mohammedan art, or French primitives public-spirited owners of works of art do not invite the public to enjoy with them the riches which they individually possess, and whose collective abundance is often unsuspected until thus revealed.

The Chair then called for the report of the Auditing Committee which was presented as follows:

Dr. Oliver C. Farrington (Field Museum).—"Mr. President, the Auditing Committee reports that it has examined the accounts of the Treasurer and found them correct as reported to the Society."

The report of the Auditing Committee was accepted and it was voted that the Treasurer's report be placed on file.

President Lucas.—"When we adjourned this morning we had under discussion a resolution in regard to asking for legislation for the preservation of historical and archeological monuments and objects of interest. The discussion was then incomplete and it was suggested that it might be renewed at this afternoon's session."

Dr. John M. Clarke (New York State Museum).—"I desire to say just a word on that subject, Mr. President, without taking too much of the Association's time. It was my misfortune not to be present at the meeting of last year, when I presume these matters were generally brought up which have given birth to this resolution, and also which seem to have fathered the paper of Mr. Gilman. Some two years ago, before Dr. Conwentz gave his lectures in England on the conservation of natural monuments, I memorialized through the Regents of the University, the citizens of this state, in regard to the preservation of natural monuments here, making an appeal to local

societies, historical and scientific, to encourage a watchful guard over objects which were worth while, both natural and archeological objects, and this brings my remarks within the scope of this resolution. There was a generally favorable response to this proposition although I am afraid that so far there has been no organized action taken with reference to these matters. At the same time, so far as the historical objects were concerned, the interest of the American Civic and Historical Preservation Society was aroused, and the outcome of the effort lies in the lap of the gods. I am sure results will follow from these efforts, so that I am very much rejoiced to now learn for the first time of the proposed action by this Association with reference to these matters. In my propositions I had specified by way of illustration certain definite objects worthy of preservation. I recall the fact that the first of them was the case of the Tonawanda swamp near Buffalo, which is the breeding place of many rare birds, and which is so large that it could be conserved only by a joint effort on the part of more than one community acting for a common object. I fancy, for example, that Rochester and Buffalo might get together with their scientific societies and various scientific interests and could get a hold on this spot which has no great commercial value, and by an inexpensive system of patrol preserve that for future generations. I have approached during the past year Mr. Gifford Pinchot, before his connection with the government service was severed, in regard to this matter of conservation of natural objects being taken up by the national committee on conservation. He thought it might. He seemed to think that this kind of conservation was perhaps not included in the original rather vague purposes of the fathers of the national conservation idea. I doubt very much if it was, but at the same time the term might well be enlarged to cover even conservation of natural monuments in the sense in which Dr. Conwentz has used the term. It had been the intention of the American Civic Association to make some definite recommendation to the national conservation committee toward this end. Yet it still remains, whatever recommendations pass through those large organizations, in my judgment, a matter for the locality to look to, and I believe that any action that is contemplated by this Association in this particular direction would find its productive outcome only through the local organizations which are in a position to care for these things.

"This paper of Mr. Gilman's has been to me exceedingly suggestive, this idea of registering works of note outside of the walls of the

museum and making them essentially a loan collection of that museum. It raises the question in my mind whether it will not be possible for scientific interests in the same way to register local natural objects that are worthy of note and exercise a guardianship, a watchfulness, over them to keep them from destruction, because I think no one realizes as the man who is concerned in the field with natural objects how rapidly objects of merit are passing away from us. The rare tree which may be an exceedingly unusual member of our flora, or the gigantic glacial boulder which stands by itself as a monument of a great record, how easily such things pass out of sight. They are destroyed for slender causes, to get them out of the way, and as time runs on of course these things are rapidly disappearing from the surface of our country.

"I have taken the opportunity, Sir, of making these remarks apropos of this resolution. I feel entirely in sympathy with the general purport of the resolution. I wish it might be expanded to take in not only the objects mentioned, but the natural objects, as I think there are some other agencies that are interested in caring for the objects that are specifically mentioned. I do not know of any agency in this country that is concerned in caring for natural monuments. Why should not this Association take a step in that direction by broadening the expression of that resolution? If the Association passes the resolution, those of us who are intimately interested in these matters will still continue our active concern through the local organizations which can best control and guard these objects."

In the course of further discussion a number of amendments were suggested with the result that the resolutions were finally referred back to the committee for further consideration, with the understanding that a report would be submitted at the next morning's session.

Mr. Frank H. Severance (Buffalo Historical Society).—"Mr. President, if the time allows just a moment, I was asked by one or two of our friends at luncheon in regard to the placing of tablets in this part of the country. This is practically the subject that has been under discussion in considering this resolution. I would like to tell you just briefly what we have been doing here in western New York on the Niagara Frontier. Several organizations, including the Buffalo Historical Society, the Historical Society of Niagara Falls, clubs, chapters, and patriotic societies named representatives from their several organizations who constitute a general representative body

known as the Niagara Frontier Landmarks Association. It represents probably eight or ten organizations. Its object is to place suitable monuments or tablets at the sites of historical interest. We have worked together for some five or six years, and have marked historical sites in Buffalo and down the Niagara River, our field being the whole of the Niagara Frontier. We have placed stone boulders with bronze or brass tablets, or erected tablets on the walls of buildings, marking probably a dozen or more historical sites. The work is still going on. Every year we put up a tablet or two to mark some site that is of interest and of real importance in the history of the region, and tomorrow when we go to the Falls some of you will probably notice some of the work of this Frontier Landmarks Association. For instance, on the way to the Falls we pass the site where La Salle built the first ship larger than an Indian bark canoe that was ever on the Great Lakes above the Falls, the site of the old shipyard of the "Griffon," and that is one of the places we have marked by locating boulders and putting on a suitable tablet, and you will see others perhaps about Buffalo or down the River. I mention this simply to inform you a little about what we have been doing in this neighborhood along the line of the resolution you have just been considering."

Dr. Clarke.—"I would like to take just a moment to express my very keen appreciation of the remarkable work which Mr. Severance with the support of the Society he represents, and the allied societies, has been doing in this line in this part of the world. It is really a matter of congratulation that the state of New York has within its citizenry a man of his interest, his lively, keen, active interest, not only in the matter of recording local events here, but a broad appreciation of New York State history. I believe that this Society will appreciate a citizen as useful as he is, because so many of us are looking for just such a man as that. I wish there were more of his kind in the world." (*Applause.*)

Mr. Howland then announced the arrangements which he had made for the excursion to Niagara Falls on the following morning and the Association adjourned until evening.

SESSION OF WEDNESDAY, JUNE 1

Evening

The meeting was called to order by President Lucas. Dr. Carlos E. Cummings, secretary of the Buffalo Society of Natural Sciences, then gave a demonstration of lantern slide preparation, consisting in taking pictures of the audience with three cameras exposed simultaneously with one flashlight. These negatives were then developed and dried and lantern slides were prepared in time to be thrown on the screen at the close of the first paper of the evening.

The following paper was then read by Mr. Newton H. Carpenter, secretary of the Art Institute of Chicago:

THE VALUE OF MEMBERS TO MUSEUMS

I have been carefully looking over the annual reports of our American museums, especially of the art museums, with the object in view of seeing how important a part the members of each of the museums were taking in their financial support and management. This examination has led me to the conclusion that we have not appreciated to the fullest extent the great value that a large membership may be to a museum, nor have we given to this important subject the attention that it merits. I believe that in every community there is a large number of influential citizens who would be pleased to become identified with each of the museums located in it and that they would be of very great financial and moral support. The fact that a museum is open free the whole or part of the time, I do not think would materially affect the number of its members. Nearly all of our museums have incorporated into their organization provisions for one or more kinds of members. There seems to be no uniformity either in the names of the memberships, the conditions necessary to membership, the methods of securing members nor in the financial and moral advantages derived from them. Possibly each one of our museums can be benefitted by a careful study of what the other museums are doing.

Museums that have been founded by a single donor, or that have received ample city or state aid by which their ordinary operating expenses are provided for, have not felt the necessity of securing the coöperation of members as much as other museums not so provided

for. The success in securing members is due in great measure to the necessities. Where a museum has had large demands made upon it and has very small resources with which to meet them, it naturally exerts greater effort in securing members. The success of the Art Institute of Chicago is probably due to the fact that the demands made upon it were greater than upon other museums, while the financial resources to meet those demands were smaller. I would hardly venture to offer as a reason for its success that the citizens of Chicago are more aesthetic or more liberal than the citizens of our Eastern cities.

In order to bring this subject before you for your consideration I am going to take the liberty of explaining to you what the Art Institute of Chicago has accomplished in this very important work. The Art Institute was organized in 1879. Yesterday, May 31st, it completed its thirty-first year. The advisability of associating with it as many of our citizens as possible, was carefully provided for in its by-laws. Three classes of members were created, as follows: Governing Members, Annual Members, and Honorary Members. Governing Members are elected by the trustees upon the unanimous recommendation of the executive committee. They pay an initiation fee of \$100 and annual dues of \$25. They own and control all the property of the Art Institute. A Governing Member's ticket admits to the Museum the owner, family, and any friend, or friends that he may wish to bring in. An Annual Member's ticket for which he pays \$10 a year, admits the owner, family and non-resident guests to the Museum at any time. These are practically all the kinds of members we have ever had. Our by-laws, however, have been so amended that a Governing Member and an Annual Member can be exempt from paying annual dues by making one cash payment of \$400 and \$100 respectively. They are then known as Governing Life Members and Life Members. These life members' fees are put into our endowment funds and the interest on each is credited to our Governing Life and Life Members as their dues. The receipts in dues and fees from members since our organization, thirty-one years, have been as follows:

| | |
|---|--------------|
| Governing Members' fees..... | \$38,900.00 |
| Governing Members' dues..... | 96,655.00 |
| Governing Life Members' fees..... | 14,200.00 |
| Interest on Governing Life Membership fees..... | 3,600.80 |
| Annual Members' dues..... | 470,120.75 |
| Life Membership fees..... | 63,900.00 |
| Interest on Life Membership fees..... | 11,482.98 |
| Total..... | \$698,859.53 |

That is, our members since our organization have paid into the treasury of the Art Institute about \$700,000.

The receipts from members during our first year were small. They have, however, shown a steady increase. During the last fiscal year the receipts have been as follows:

| | |
|---|-------------------|
| Annual Memberships..... | \$24,955.00 |
| Life Memberships..... | 22,400.00 |
| Interest on Life Memberships..... | 2,070.76 |
| Governing Memberships..... | 200.00 |
| Governing Membership dues..... | 3,925.00 |
| Governing Life Memberships..... | 1,200.00 |
| Interest on Governing Life Memberships..... | 525.91 |
| Total..... | <hr/> \$55,276.67 |

That is, our members have paid into the treasury of the Art Institute over \$55,000 during the past year. To produce this amount of income each year would require an endowment fund of over \$1,300,000 at four per cent. If some wealthy man were to offer us \$1,300,000 on condition of our discontinuing these memberships, we would not consider it for a moment, for we believe that the amount of annual dues will continue to increase each year.

The interest awakened by memberships has often prompted the gifts of paintings or other objects for permanent exhibition, also subscriptions toward our building funds, or the purchase of paintings or art collections for the Institute. Doubtless most of the twenty-five bequests the Art Institute has received have been more or less prompted by the donors being members.

The membership fees, gifts of objects of art, donations, and bequests are by no means all of the benefits that we have received from our members. Their constant interest in the exhibitions, kindly coöperation in our affairs, valuable assistance in our work, and ever-ready advice and sympathy are a constant inspiration and source of encouragement. Of the \$700,000 paid to the Art Institute by the members, \$80,000 has gone into our endowment fund and \$620,000 has been used for operating expenses.

I do not think it out of the way for me to confess that we have had great difficulty in meeting our operating expenses. Had we been deprived of the financial help from our members, it would have been practically impossible to maintain our museum. It is always a pleasure to note how much more interested a person is in the Art

Institute after taking out a membership. Not only do the members take great pleasure and pride in their memberships, but so does every member of their families, and they all have large families. I was very much amused recently to see one of our former students come into our office voluntarily and buy an annual member's ticket. He remarked, "You don't know how much better I feel now; why I feel just as if I had joined the church." I often hear our members speak to their friends with evident pride and enjoyment of the fact of their membership in the Art Institute. It is quite a common occurrence to see the fact mentioned in death notices that the deceased was a member of the Art Institute.

There are two societies closely associated with the Art Institute whose members, by a liberal construction, might be regarded as members of the Art Institute; these are the Antiquarians of the Art Institute and the Friends of American Art.

The Antiquarians of the Art Institute were organized as a society in 1878. The original object of the society was to provide a place in Chicago where decorative articles could be purchased, such as portieres, screens, embroideries, etc. After conducting a business for ten years, our large stores took up this line of work and the society discontinued it. In 1888 the society was reorganized, since which time its object has been to collect antique objects of art and present them to the Art Institute. They have purchased articles and collections costing about \$50,000, and in addition many of the members have made important individual gifts. The articles presented to the Art Institute and the loans from members of the society have nearly filled two of our important galleries. The society has had one bequest of \$5000 from a member, and the income from this fund is to be used for the objects of the society. The members have also been of frequent use to the Institute by assisting at receptions and other important functions.

Nearly all of the works exhibited by the Art Institute have been executed by foreign artists. This very apparent defect in ignoring native artists is now about to be remedied. A number of our patriotic citizens, desiring to increase our collections and encourage American art, are forming a society which will be known as the Friends of American Art. It is patterned after similar societies in Paris for the encouragement of French art. Over one hundred and forty of our good friends have already joined this society, each one of whom has agreed to pay \$200 a year for five years, that is \$1000 each, or a total of \$140,000. It is proposed to greatly add to this number and also to

fix the conditions of membership so that anyone can contribute annually such an amount as he wishes. It is well understood by each society that no object can be purchased without its first being submitted to and approved by the art committee of the Art Institute. This important provision will protect the Institute from being presented with undesirable articles for exhibition. The most active and influential members in each society are those most closely identified with the Art Institute. We therefore feel confident that the purchases made by them will be those most desired by the Institute.

The following clubs and societies have their headquarters and hold their meetings in the Art Institute building. They are all more or less associated with the work being done at the Institute.

Chicago Society of Artists.

Chicago Water Color Club.

Chicago Society of Etchers.

Chicago Ceramic Art Association.

Chicago Camera Club.

The Art Students League.

The Chicago Society of Amateur Photographers.

Atlan Ceramic Club.

Illinois Chapter of the American Institute of Architects.

Architects Business Association.

Municipal Art League of Chicago.

The Antiquarians of Chicago.

Chicago Horticultural Society.

Germanistic Society.

Alliance Française.

Geographical Society.

Polytechnic Society.

Public School Art Society.

Alumnae Association of Decorative Designers.

Society of Western Artists.

Nearly all of the members of these societies hold membership tickets in the Art Institute. In addition to the above, about six thousand of our public school teachers hold free admission tickets and some three thousand art students have the privileges of the museum and library.

Most of our museums are in urgent need of additional funds to meet the constantly increasing demands made upon them. There is no easier way to raise funds nor any better way to interest your friends

in your work and to make new friends than by encouraging them to join your membership.

The following statistics will inform you of what the art museums have received from members during the past year.

THE ART INSTITUTE OF CHICAGO

| | | |
|---|-------------|-------------|
| Annual Memberships..... | \$24,955.00 | |
| Life Memberships..... | 22,400.00 | |
| Interest on Life Memberships..... | 2,070.76 | |
| Governing Memberships..... | 200.00 | |
| Governing Membership dues..... | 3,925.00 | |
| Governing Life Memberships..... | 1,200.00 | |
| Interest on Governing Life Memberships..... | 525.91 | |
| | <hr/> | \$55,276.67 |

THE METROPOLITAN MUSEUM OF ART

| | | |
|----------------------------|-----------|-----------|
| Fellows in Perpetuity..... | 5,000.00 | |
| Fellows for Life..... | 5,000.00 | |
| Fellowship Members..... | 7,350.00 | |
| Sustaining Members..... | 6,250.00 | |
| Annual Members..... | 22,260.00 | |
| | <hr/> | 45,860.00 |

MUSEUM OF FINE ARTS, BOSTON

| | | |
|-------------------------------|-----------|-----------|
| Annual Membership fees..... | 10,920.00 | |
| Annual Contributors..... | 13,070.00 | |
| Two Life Membership fees..... | 1,000.00 | |
| | <hr/> | 24,990.00 |

JOHN HERRON ART INSTITUTE OF INDIANAPOLIS

| | | |
|-------------------------|----------|----------|
| Annual Memberships..... | 5,000.00 | |
| Life Memberships..... | 400.00 | |
| | <hr/> | 5,400.00 |

THE PENNSYLVANIA MUSEUM AND SCHOOL OF INDUSTRIAL ART

| | | |
|---------------------|------------|------------|
| Annual Members..... | \$2,805.00 | |
| Life Members..... | 1,200.00 | |
| | <hr/> | \$4,005.00 |

THE BUFFALO FINE ARTS ACADEMY

| | | |
|-------------------------|----------|----------|
| Life Memberships..... | 2,400.00 | |
| Annual Memberships..... | 1,108.00 | |
| | <hr/> | 3,508.00 |

FAIRMOUNT PARK ART ASSOCIATION OF PHILADELPHIA

Annual dues from members..... \$2,380.00

CINCINNATI MUSEUM ASSOCIATION

Annual Membership fees..... 1,500.00

DETROIT MUSEUM OF ART

Annual Membership fees..... 1,300.00

The remainder of the evening was devoted to a demonstration by Dr. Carlos E. Cummings of lantern slides used in the work of the Buffalo Society of Natural Sciences with the public schools of Buffalo. These slides were intended to illustrate the geography of various parts of North America which Dr. Cummings has visited in the prosecution of this work.

SESSION OF THURSDAY, JUNE 2

Morning

The Association was called to order in the banquet room of the Prospect House, Niagara Falls, at 11 o'clock, President Lucas presiding.

The Chair then asked the Association to take action regarding the place of the next meeting.

The Secretary reported that he had received an invitation from the Conventions Bureau and other organizations in St. Louis to meet in that city in 1911.

Mr. Louis Earle Rowe, on behalf of Mr. Benjamin Ives Gilman, then extended to the Association an invitation to hold its next meeting in Boston. Mr. Rowe stated that this invitation was extended in the name of the following institutions: Museum of Fine Arts, Boston; Boston Society of Natural History; Peabody Museum of Archeology and Ethnology, William Hayes Fogg Art Museum, Semitic Museum, Germanic Museum, and Museum of Comparative Zoology of Harvard University; Peabody Museum, Salem; Essex Institute, Salem; and the Thayer Museum of Ornithology, Lancaster, Mass.

It was voted that the Association accept the invitation to meet in Boston in 1911, the date of the meeting to be arranged by the Council

and the local committee and that thanks be returned for the invitation extended from St. Louis.

President Lucas.—"The next piece of business is amendments to the Constitution. Is Dr. Talmage ready to report?"

Dr. James E. Talmage (Deseret Museum, Salt Lake City).—"Mr. President, the amendment should take the form of an added article, and as the committee on that matter, I report the following recommendation—that we add Article VIII, to be headed, Amendments to the Constitution, and to read:

'This Constitution may be amended by a two-thirds vote of members present and voting at any meeting, provided that every proposed amendment shall be first considered by the Council and be reported by the Council with or without recommendation.'"

After extended discussion as to the advisability of requiring notice of proposed amendments to be submitted in writing to all members of the Association, the Association voted to adopt the amendment as reported by the committee. Dr. Arthur Hollick requested to be recorded as voting in the negative.

The amendment governing the distribution of the published *Proceedings* of the Association was then suggested by Dr. Talmage. The Chair ruled that, under the Constitution as amended, this matter could not be considered at this session.

The committee on historical and archeological objects then reported that it had considered the suggestions made in the discussion on the previous day and submitted the following resolution which was unanimously adopted:

Resolved, That it is the sense of the American Association of Museums that proper state and federal laws should be enacted for the acquisition, by condemnation proceedings if necessary, for the exploration, preservation, and proper record and labeling of local objects and places of historic, archeologic, and natural interest; and furthermore,

Resolved, That this organization urges that museums and associations of art, history, and science take immediate and proper steps for the recording and labeling of such local objects and places of historic, archeologic, and natural interest.

There being no further business, Mr. Charles R. Toothaker, curator, Philadelphia Museums, then gave a talk on museum catalogs and records. The discussion proceeded as follows:

President Lucas.—"It seems to me in the matter of cataloging, each class of material has its own needs, and that the needs of the catalog can only be determined by the institution itself."

Dr. Charles F. Millsbaugh (Field Museum).—"I feel that we have hardly time this morning to discuss the question of cataloging. I think probably one session of three days, one of our annual meetings, might be an excellent time to discuss the subject. I think the catalog is the most important part of the whole museum proposition. There is always a chance for the label to be dissociated from the specimen or the specimen from the label. I have the satisfaction of feeling in regard to my collection that you gentlemen could put the whole collection out in the middle of a lot, take a hay-spreader and run through it for an hour, and I could put it all back in the cases again with the labels associated with it. Without a catalog I should feel as though I had not done my duty as curator of a department of a museum."

Mr. E. L. Morris (Brooklyn Institute Museum).—"I presume while Mr. Toothaker was speaking every member made an individual reservation that the question of cataloging includes all material, not merely that which Mr. Toothaker mentioned as material on exhibition, as, for instance, in our own museum every specimen of worm that we have that is worthy of keeping is on exhibition. There are perhaps a couple of dozen that require no cataloging. They are their own catalog. But when you get a collection that is only synoptic because of a number of species represented, and most of those species are put away, many of them stored entirely, some catalog system and reference to storage trays or cases is required because of the size of the specimen. Such a catalog is absolutely essential. There are times when the curator is not present. There are times when some citizen comes in who should have at his hand a ready reference by which he can determine what is in the museum, where it is to be found and how much of that group is represented. We have started in the Brooklyn Museum a series of catalog cards in duplicate, one arranged alphabetically for quick reference, the other arranged systematically, which immediately gives a view of how much or how little there is represented in that collection in that group. The accession catalog is a general proposition for the museum as a whole. The subject catalog is a numerical catalog and indicates the material exactly as it is received and the numbers assigned."

Mr. Frank C. Baker (Chicago Academy of Sciences).—"I was going to say I think it is an axiom with all natural history museums

that a catalog is absolutely necessary, and the extent of that catalog I think may vary with the idiosyncrasies of the curator in charge. But there should be at least an acquisition catalog and a card catalog so that one can tell at a glance just what is in the museum, not only for the curator's reference but for the reference of any visitor who may come to the museum."

President Lucas.—"If Mr. Toothaker will come to Brooklyn we will give him a special session and be glad to show him our catalogs."

Mr. Henry L. Ward, director, Public Museum of the City of Milwaukee, then read the following paper:

EXHIBITION OF FOSSILS AND SKELETONS IN POPULAR MUSEUMS

In the average museum, next in order to collections of trimmed rocks, probably no series are of less popular interest than those of paleontological and osteological specimens saving only those sections including mounted skeletons of large and strange appearing extinct animals as Dinosaurs, Titanotheres, Proboscidiens, etc., and of a few recent animals as man, large whales, etc.

The cause of this lack of interest probably is that there is little popular knowledge concerning them; and people generally are not interested in objects of which they know little or nothing unless there is something so remarkable in their size or form as to fix the attention and excite wonder.

That both these classes of objects are important, and if rightly displayed should be popularly instructive, needs no argument, therefore the question that I wish to present for discussion is how best to exhibit them that the public may be interested in and become informed about them.

The usual method of exhibiting fossils, especially botanical and invertebrate forms, is in chronologic series, making geologic eras, periods or epochs the units, and arranging the forms of each of these time divisions in biologic sequence. The resultant popular ineffectiveness seems logical because the suggestion then is that the chief interest does not center in the specimens themselves but rather in their use as markers of geologic time.

At the present day we distinguish paleontologists from geologists and, at least among the former, paleontology is considered a biologic science.

The larger biologic divisions of paleontologic specimens have their modern representatives which have served the paleontologist in arriving at an understanding of the usually imperfect and often distorted and otherwise obscured remains which he studies.

If comparisons of fossil with living forms are necessary for the paleontologist, it seems as though it would aid the average museum visitor in securing some idea of their relationships. In biology there is supposed to be a sequence from earliest life to modern forms, but as this transition has not been linear, as many modern groups have branched from ancient stocks some distance back from their extremes, which latter may have left no descendants, it seems therefore wholly arbitrary and inadvisable to make a chronologic separation between recent and fossil forms in a biologic series.

The average museum visitor may be presumed to have some sort of familiarity with some of the more common living forms of the various classes of animals and plants, which knowledge may serve him to some purpose in becoming acquainted with their relatives; and so it is presumable that if living and fossil forms were arranged together he might to some extent, by comparison of the one with the other, "proceed from the known to the unknown;" which method Huxley stated to be "one of the soundest canons of instruction."

It is unfortunate that there is probably no feasible mode of museum arrangement by which a perfect evolutionary sequence may be exhibited, but assuredly a nearer approximation to such a sequence can be obtained by treating fossil and recent forms in one series than by arbitrarily separating them.

It is also very probable that the popular mind will derive more satisfaction in tracing evolutionary modifications from extinct to recent animals and plants than it will in contemplating them chiefly as geologic markers. It therefore appears to me that the logical treatment of a general paleontologic collection would be to incorporate it with living forms, entirely disregarding the geologic factor. Local paleontologic collections fall into a separate class and should be kept intact. This method of arrangement is not that in general use and so will probably be considered unorthodox; but from my cogitations on the subject it appears that the usual system is a relic from the period when paleontology was merely a time card to the geologist and

not generally considered as a biologic science. As I have seriously in mind following such a scheme in the Public Museum of the City of Milwaukee, I have taken this occasion to bring the matter to the attention of this Association in order that I may be fortified or restrained by the criticisms of others.

The next query relates to skeletons of vertebrate animals which are zoologically of much importance and yet do not seem to be very popular nor to be generally very extensively exhibited even in those museums not primarily maintained for the populace. The most effective method of exhibiting a moderate-sized series of mounted skeletons of all classes of vertebrate animals is a problem that has given me some worry.

The original installation at the Milwaukee Public Museum placed all of the skeletons from mammals to fishes in one series arranged in a row of cases at one side of the mammal hall. Largely as a matter of space convenience, all but the mammal skeletons were removed from this room, the bird skeletons placed in cases at the end of the exhibit of mounted birds and the skeletons of reptiles, batrachians, and fishes placed close by the mounted and alcoholic preparations of these animals. In various museums a further breaking up of the skeleton series is effected by scattering the individual specimens among the mounted skins, placing each along side of the mounted skin of the same species. In some ways this latter arrangement would seem to be the most logical in that, to the general public, the osteology of an animal is unknown, whereas the outer surface, skin, is either known or is sufficiently similar to other known forms as to be quite comprehensible; and so the proximity of the skeleton to the mounted skin makes the former more nearly come into the realm of the known, and permits of a direct comparison of one with the other as to general contour, positions of leg joints, etc. However, from an osteological standpoint these features seem of small importance compared with what Huxley termed "the architectural and engineering part of the business" "the modifications of similar apparatuses to serve different ends." These can be brought out, if at all, only by arranging the skeletons in a continuous unbroken series, at least to the extent of keeping those of each class in this manner, or by special exhibits of series of parts of skeletons. Only by these means does it seem possible to secure comparison of similar parts of different animals; and this, it appears to me, should be, and probably would be, of more interest to the average museum visitor than would be merely the comparison of the mounted skeletons and skins of the same animals.

Pretty nearly everyone is interested in noting the similarities and differences between the human skeleton and that of an anthropoid ape; and with this as a beginning he might, it seems probable, be readily led into greater osteologic intricacies that would be both pleasurable and instructive.

There is little question that were mounted skins and skeletons arranged in parallel rows separated only by an aisle both comparisons could be readily made; but this would necessitate a much greater parity between the two series than usually exists in popular museums. Only three modes therefore seem practical, first, an osteological series by itself and disconnected from the mounted skins; second, the collection divided into classes and each put near the mounted skins of the same class; third, the individual skeletons each put by the mounted skin of the same species.

As there is considerable opportunity for differences of opinion, and as the matter ^{i b c} is of considerable exhibitional importance, I hope that it will be discussed.

Dr. Arthur Hollick (New York Botanical Garden).—"There is one point in Mr. Ward's paper that I am very glad he brought up, because it is something that has worried me a little; that is, in regard to making collections of fossils, in my case mainly fossil plants, whether they should be strictly geologic or whether they should be exhibited in connection with living plants. The main collection of fossil plants which I described the other day is, as I stated, arranged on a geologic sequence. I will say though that I have been considering, and have already begun to put in operation, a scheme to place a certain number of representatives of fossil plants in a taxonomic collection of living plants on the floor above, so that eventually I hope to have at least one fossil representative of each family of living plants in the systematic collection represented. Just how far we had better go with that I am unable to say, because I have no control over the systematic collection. While I made the suggestion myself, the suggestion ought to have come from the other department to me. I ought to have been asked to put the fossils in with the systematic collection instead of asking them to let me do it. But how far that will be accepted by the powers that be at the Botanical Garden I am unable to say. Personally I should like to see it done very much indeed, and if I am permitted I will have a fossil representative of each living family, and if possible go farther than that and have each order also represented."

Miss Alicia M. Zierden (Pennsylvania State Museum).—"May I ask a question, Mr. President? Pennsylvania is rich in many of the carboniferous forms of ferns, etc. Would that be the place for a geological or for a botanical collection?"

President Lucas.—"Personally, I should say for both."

Miss Zierden.—"But suppose we just have the one collection of specimens. If you just had the one would you display it among the fossils or among the botanical specimens?"

President Lucas.—"If I could only have one, I think I should put it among the fossils."

Dr. A. R. Crook (Illinois State Museum).—"I think Mr. Ward is quite orthodox in his preference and tastes in this regard. My remembrance and knowledge of the collections in the South Kensington Museum and the museums in Brussels, Berlin, and Munich is that the plan is adopted of following the zoological order and having duplicate collections for the geological series."

Mr. Wilfred H. Osgood (Field Museum).—"The other plan that was suggested by Mr. Ward, that of associating skeletons and mounted specimens of mammals and birds, is followed in the British Museum, also I think in the Berlin Museum, and in one or two other European museums, the mounted skeleton being in the same case with the skin. It seems to me that the question that lies back of this whole matter is that of synoptic series versus systematic series. In the synoptic series it would seem necessary to have a collection of skeletons, but in the systematic series of mammals or birds it would be very desirable to have skeletons with them."

President Lucas.—"I could speak briefly on this subject in about an hour and a half, but I hope to have the pleasure of a call from Mr. Ward next week, and I have just set myself down for a paper on this subject for the next meeting. (*Laughter.*) It is a subject on which I have very decided ideas. I hope Mr. Ward will give me about half a day on that."

The next paper on the program was then read by Mr. Wilfred H. Osgood, assistant curator of mammalogy and ornithology, Field Museum of Natural History.

LABELING LARGE COLLECTIONS OF MAMMALS
AND BIRDS

The exhibition label has always been regarded as a detail of great importance, and therefore has been the subject of much thought, discussion, and experiment; but the label of the specimen belonging to the reserve or study series, although more permanent and numerically more important, has received little attention. Curators continually complain that the label will not do all they wish it to, but, although minor points change frequently, the essential characters of the label are the same now as fifty years ago.

The matter of size or compactness is quite important and the effort to attain ideal conditions in this respect or the utter disregard of them is the direct cause of much lack of uniformity. One curator uses a very small label out of respect for the specimen, and perhaps his successor prefers one twice as large with more consideration for the man who writes the label than for the specimen itself or the man who uses it. Very likely each goes to an extreme and a third attempts a compromise. This gives us at least three different sizes and each of these may go through several variations. One wishes certain items of the data on the front of the label and another thinks the same items should be on the back. It is true, the label is a very small affair and the inspection of both sides and all angles is no great task, but nevertheless one who works with large numbers of specimens finds it exceedingly convenient to have each item of the data always in one place; and even if it be only for the sake of appearances, I think it will be generally admitted that uniformity is highly desirable. One of its manifest advantages is the fact that it fosters neatness in clerks and assistants and inspires pride in the appearance and condition of specimens which undoubtedly tends to add years to their term of useful preservation.

The most uniform system of labeling known to me is that of the United States Biological Survey collection which has been formed within the last twenty-five years and fortunately has had the continuous direction of one man of great capacity for detail. Another unusual condition is the fact that the collection has not been derived from miscellaneous sources but has been obtained largely by the Survey's own trained agents to whom labels of uniform style have been supplied in advance. Economy of space is obtained in the Biological Survey label by having the name of the collector and often the general

locality printed on the label in advance. There are no superfluous words printed such as name, locality, date, sex, measurements, original number, etc., which are often seen on labels; but the collector is taught to write these various items in their proper places without any indication from the label itself. A point in which it differs from most museum labels is the position of the space for the museum's serial register number. This is at one end and the number is written transversely instead of lengthwise of the label. This permits a very narrow label, but has the disadvantage of occupying some of the length which is often scarcely sufficient for very long names or those consisting of three words.

The labels of other American collections are frequently larger than those of the Biological Survey and differ somewhat in arrangement of space. The name of the institution is often printed at the extreme top but is divided, leaving space in the middle for the register number. Below is a single ruled line for the name of the animal, and below that another, or an unruled space, for the locality, date, and name of the collector. The economy of space gained by the division of the imprint at the top, however, is not taken advantage of, for these labels are nearly twice as large as those of the Biological Survey and certainly considerably larger than is necessary. But while these seem slightly too large, I am convinced, after a number of years continuous experience with it, that the Biological Survey label is slightly too small for ordinary museum use although as used by the Survey it is satisfactory, owing, as explained, to somewhat exceptional circumstances. It therefore seems possible to effect a desirable compromise between the two sizes by slightly increasing the width over that of the Biological Survey, and, while keeping the actual length about the same, gaining in available length by placing the register number in the middle at the top instead of transversely at the end.

Besides the small size of its label, the Biological Survey collection is noteworthy in another respect: each specimen has only one label, the original written by the collector being also the permanent one. This is due again to the uniform methods under which the collection has been made. Anyone working with it or even casually looking over it cannot fail to appreciate the advantages of this feature. In old collections derived from miscellaneous sources, it is common to see specimens each with two, three, or even half a dozen labels of all sorts and sizes, from tiny tags smaller than a postage stamp to big thick cardboards four or five inches in length and half as wide. Besides the

original collector's label, which may be anything, there are likely to be museum labels commemorative of special expeditions or monographs and various others representing different curators who have served the institution from time to time. Some are dirty and greasy, others quite fresh, some covered with illegible scrawls, others neatly printed, some dangling at the end of long strings, others closely tied. But all are reverently preserved, however the weight and the tangle may shorten the life of the specimen. Even specimens of fairly good size suffer considerably from the wear and tear of such burdensome appendages while very small ones, as shrews, small mice, humming-birds, warblers, and other small birds, often are seriously mutilated within a very short time. The number of three-legged shrews and mice and birds with broken tails or missing feet would undoubtedly be lessened greatly if labels were smaller, lighter, and less numerous. A multiplicity of labels is usually inconvenient to the one using the specimen, for although each label generally carries a duplication of the information on all the others, it is necessary to examine each one separately for fear something may be overlooked.

It is scarcely to be hoped that all duplication of labels can be avoided in ordinary collections and perhaps the majority of curators would not consider it desirable. Certainly there are very few who do not believe that the original collector's label should always remain attached to the specimen. This being the case, the great majority of specimens will have at least two labels, the collector's and the museum's. If the collector's label could be detached after the data has been copied on the museum label we would have uniformity and better preserved specimens. But if we detach the collector's label we are disposing of the original record and, besides opening the way for errors in transcribing, we are robbing the specimen of some of its individuality. Except in cases where the collector's label is absolutely preposterous and intolerable, detaching the original label seems little short of sacrilege, but it has many advantages. Of course the original label is not destroyed, nor is it removed from the specimen until the museum label has been attached and carefully compared. Then the original label is marked with the register number, cut off, and filed away by some simple system. Thus each specimen carries but one label and the appearance of the collection as a whole is vastly neater than it would be otherwise, while the specimens are subject to much less abrasion and general wear and tear from the labels and strings. At the same time, it is possible in cases of doubt about the data, to refer to the

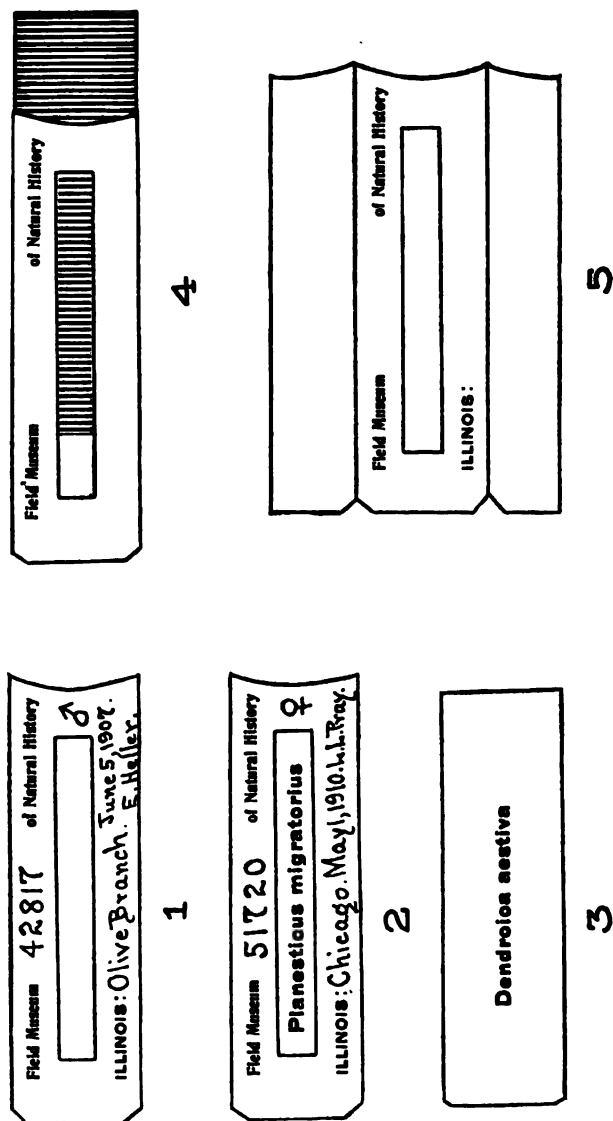
original label. When proper labels are supplied to trained collectors in advance, it is, of course, unnecessary to make such changes, but it might be advisable sometimes even under these circumstances.

There is an additional advantage in this method of filing which is even more in the spirit of reverence for the original label than leaving it on the specimen. That is, it insures better preservation of the label itself. It might be thought that the label would stand the lapse of time as well as or better than the specimen, but this is not always so. The original label is frequently prepared by an amateur, the paper is poor, and the ink (if ink is used) is not of lasting quality; so as time goes by the paper disintegrates and the inscription fades even under the best conditions, while it often happens that a careless assistant or even an absorbed man of science gives the label rougher treatment than it can stand and it is mutilated perhaps beyond repair. Then there is the grease and dirt which in many cases works out of the specimen and saturates the label. If this be the original label it cannot be renewed, whereas any other can be replaced while the original is safely filed away from dirt and strong light. In our National Museum at Washington where there are many specimens more than fifty years old, and in the British Museum and other European museums where some are more than one hundred years old, one finds in many cases that the original labels have been entirely lost or are so faded, worn, and stained that the inscriptions on them are scarcely decipherable. It is within fair possibility that many of the specimens now going into our study series of mammals and birds may be preserved for two or three centuries at least, and certainly all of them will exist for a very long period. It would seem therefore that the important original label could be more safely kept and rendered useful and reliable for a much longer period if it were filed away from exposure, than if it were allowed to remain attached to the specimen.

In the long future awaiting these specimens, it is probable that the museum label bearing the name of the species and other data derived from the study of the specimen will need to be changed more than once. This problem, indeed, is as much of the present as it is sure to be of the future. Time after time, a misidentification or a change in nomenclature makes it necessary to alter the labels on a whole series of specimens either by means of erasures or by supplying entirely new labels. Every curator carries it as a perpetual burden. No sooner is a collection thoroughly identified and neatly inscribed with duly authorized names than someone upsets a generic name or dis-

covers a hitherto unrecognized species. A few such rearrangements by the industrious nomenclaturists may effect thousands of specimens even in collections of moderate size and sooner or later the names which have required much patient labor to inscribe must be changed. It is useless to complain of the men who are responsible for the nomenclature—they are doing the best they can and the necessity for change is no more agreeable to them than to others. There are no conspicuous signs pointing to an early millennium in zoological nomenclature and even if there were, the labels on museum specimens would be subject to rather frequent changes on account of hasty and mistaken identifications or differences of opinion as to closely related species or as to the recognition or rejection of various subspecies.

The seriousness of this matter and the loss of time which it occasions in the care of large collections warrants considerable effort to overcome it. From the nature of the case, the evil can only be mitigated. The plan has been suggested of having a name label separate from the one bearing the data. This, however, means two labels for every specimen and is also objectionable because the specimen is liable to some slight injury in cutting away one label and tying on another. It seems more practicable to use some sort of a compound label in which the part bearing the ordinary data conforms to established standards while the part bearing the name is detachable and reversible. As an experiment in this direction, I have had a label made in the form of a narrow envelope open at the end and having a long aperture or wide slit on the front in the space occupied by the name. This incloses a small card on which the name is written or printed and which may be easily slipped out and reversed or replaced by another. Whether this will prove acceptable in other ways will depend upon the test of actual use, but in obviating many of the difficulties just mentioned it appears to have various advantages. It allows of extensive use of the printing press, for in all cases where fifty or more of one species are to be named it will be quicker and neater to have name cards printed than to do the work by hand. In case the names thus printed require change, the card may be reversed and the new name written or printed on the back, thus preserving both names without detracting from the appearance of the label. It is also feasible to use the typewriter, since the paper can be run through the machine in long strips which are later cut into small pieces to fit the label. If it is desired to distinguish any particular specimens by colored labels, as types or topotypes, name cards of any color may be substituted for the ordinary white



EXPLANATION OF FIGURES

1. Compound label without name card.
2. Compound label with name card in place.
3. Name card.
4. Label with colored name card partly inserted.
5. Label as received from printer.

ones at any time. When labels of this sort are supplied to collectors in the field, the name card may be omitted, and if the collector desires to write brief field notes on the name space he may do so. Although these notes may later be covered by the name card, they will always be accessible. In the same way, notes derived from the study of specimens may be written on the inside space or on the back of the name card, the available space being nearly twice as great as on ordinary labels.

Although no exact figures are available, it is evident that the cost of this label will be somewhat more than that of the usual style. The paper for it must be cut with a die, each label must be scored for folding, and each must be folded and pasted. Threading and printing will be as usual except that the labels must be run through the press one at a time. The total cost, however, can never be prohibitory as even when most of the work is done by hand, a deft-fingered clerk can produce a large number of labels in a day.

Mr. Herbert H. Brimley (North Carolina State Museum).—"Do you duplicate the specimen number on the insert card?"

Mr. Osgood.—"I think that would be desirable although the cards seem to stick in very nicely. There is very little danger that they would fall out and they would stand a good deal of use."

President Lucas.—"Mr. Osgood's paper is extremely profitable. It is unfortunate that the three papers which need the most careful consideration and provoke the fullest discussion have come at the last, but it is only the Hindu juggler who can plant seed and pluck the fruit within five minutes, and I trust that the seed planted here will bear fruit at our next meeting. I would suggest that as we had at Chicago an exhibit of museum labels for the exhibition series that we have at Boston an exhibit of catalogs, cards used in cataloging, and specimen labels, and that we put down the papers at the beginning so that we may have free and ample discussion. These have been excellent papers, in fact this whole meeting has been marked by the high quality of its papers."

Mr. Charles Louis Pollard (Staten Island Association of Arts and Sciences).—"If you consider it advisable, Mr. President, I would like to move that the Council be instructed to prepare for such an exhibit. I think it would be eminently proper."

President Lucas.—"I think we can do that without formal resolution, Mr. Pollard."

The Secretary then proposed the following resolutions, which were unanimously adopted:

Resolved, That the sincere thanks of the Association be given to the Buffalo Society of Natural Sciences, the Buffalo Historical Society, and the Buffalo Fine Arts Academy, and to their representatives, Mr. Henry R. Howland, Mr. Frank H. Severance, and Miss Cornelia B. Sage for the hospitality so freely and courteously extended by them to the American Association of Museums.

Resolved, That the thanks of this Association be extended to Mr. William G. Justice for his cordial welcome on behalf of His Honor, Mayor Louis P. Fuhrmann.

Resolved, That the thanks of this Association be extended to the Country Club and the polo team for hospitalities and courtesies extended.

The following resolution was then read by Dr. W. P. Wilson, and was unanimously adopted:

Resolved, That the American Association of Museums learns with sorrow of the death of George Fisk Comfort, L.H.D., LL.D., Director of the Museum of Fine Arts, Syracuse, N. Y., an Active Member of the Association, and that the Secretary be requested to express to the family of the deceased the condolence and sympathy of the Association; and

Resolved, That the announcement of death and a brief biographical sketch of the deceased member be published as a necrological record in the next volume of the *Proceedings*.

The following paper by Dr. Charles C. Adams, associate in animal ecology, University of Illinois, was then read by title:

THE RELATION OF FIELD EXCURSIONS TO THE ACTIVITIES OF LOCAL MUSEUMS

"Museums may serve three objects. They may be institutions designed to furnish healthy entertainment, they may be intended for instruction and they may be intended for the promotion of research."—*Frans Boas*.

"There's no music like a little river's; It plays the same tune (and that's the favorite) over and over again, and yet does not weary of it like men fiddlers.

It takes the mind out of doors; and though we should be grateful for good houses, there is, after all, no house like God's out-of-doors. And lastly, sir, it quiets a man like saying his prayers."—*Robert Louis Stevenson.*

"The beauty of the world has never been of great pith or moment to mankind. Its admirers are few, its destroyers are many. . . Will he never learn that happiness is not a matter of possessions, and that mental content, joy of heart, a love of loveliness, are more potent factors in human well-being than naval power or commercial gain."—*John C. Van Dyke.*

Local museums, by force of circumstances, are generally required to encourage all possible methods of arousing interest in their aims and needs. As a result of these conditions, recreation, instruction and investigation, each in turn, demands attention from the curator. Much of that which goes under the name of educational work in museums is more truly described as recreative, a fact which shows that the two phases are not always clearly distinguished, or even distinguishable. Libraries are not founded for instruction merely, but recreation as well, and a similar view is developing concerning the function of museums and their activities. The educational work of local museums usually consists of its exhibits, guide books, and lectures; but by a large part of the public, the exhibits and lectures are treated as a means of recreation as well as of instruction. Museum lecture courses generally aim at variety rather than the continuous development of any subject. The same features characterize the occasional or annual outings or excursions which some museums conduct. These field excursions have not, in the past, been a prominent feature in the activities of museums, but as museums are becoming more intimately related to local needs, this phase seems destined to grow extensively. The writer has been particularly interested in the relation which field excursions may have to museum work, and the aim of this paper is to discuss some phases of this problem which have come up frequently in practical museum work.

As museums come to realize that they have already adapted themselves more or less consciously to the demands of the public for recreation, they will not be so likely to look disparagingly upon excursions which are conducted with recreation as an avowed purpose. Most curators have a distinct liking for and familiarity with the outdoor world, particularly the curators of natural history museums. For this reason, if they have sufficiently varied interests, they are in a position to stimulate appreciation of the natural features of their region; its scenery, its streams, its lakes, its forests, etc., not so much

from the standpoint of the collector or the naturalist as from an aesthetic and humanistic view point. The excursionist may look upon the trip as recreation, the curator as the beginning of a training to appreciate a first-hand knowledge of nature, which even if it leads no further, justifies itself completely. If, however, other interests spring from this soil and the excursionist returns to the fields, or to the museum with a new interest in the other activities of the museum, such excursions are doubly justified.

Much depends upon the spirit in which such an excursion is conducted. A visit to favorable localities is not in itself an assurance of success, for the excursionists must learn to cultivate a frame of mind favorable to the best results. The appreciation of scenery, sunsets, clouds or sounds is not an instantaneous process, but one of growth.

Most successful excursions of the general class are the "Saturday Afternoon Walking Trips" conducted by the Playground Association of Chicago. These excursions are carried on by the coöperation of members of the Geographic Society of Chicago, Illinois Chapter of the Institute of Architects, Woman's Out-Door Art League, Illinois Audubon Society, Chicago Library Club, faculties of the Northwestern University and the University of Chicago, and many other organizations. These excursions have been very successful and show clearly that there is an opportunity, largely undiscovered by museums, which shows how common ground may be found among a large variety of people whose interests at first thought suggest little in common. With the growth of our cities there should be a corresponding growth in these excursions. The aims and plans of these admirable excursions deserve to be known among curators. The following quotation is from the announcement of these walks:

In the vicinity of Chicago there are many tracts of woodland of great natural beauty which can be reached with slight expenditure of time and money. The lake shore with its ravines at the north and forest-covered sand dunes at the south, the three rivers, the wooded hills and the open country—all these offer facilities for recreation and relief from city life that, for the most part, are neglected.

It is felt that there are probably many persons who, for lack of time, or awed by the perplexity of routes offered by twenty-nine radiating railroads, have not ventured forth to enjoy the beauties of nature that lie profusely scattered at the very gates of the city; and that a series of walks, led by guides who are familiar with the regions visited, and who have solved the riddle of the time-tables, will at least serve the purpose of an introduction to Chicago's really beautiful environment.

To this end, you are invited to any or all of the walking trips scheduled below. The excursionists will be under no obligations to join the Playground Association. There will be no fees except those collected with the car fares on each trip.

SATURDAY, MAY 30TH (MEMORIAL DAY)—ALL-DAY OUTING

The Dunes

Take Special Train on the Lake Shore & Michigan Southern Railroad, leaving La Salle St. Station at 9:30 A.M., Englewood at 9:45 A.M., arriving at Millers, Indiana, at 10:30 A.M. Returning, special train will leave Millers at 5 P.M., arriving at Englewood at 5:45 P.M. and La Salle St. Station at 6 P.M.

Between Millers and Lake Michigan is the best opportunity to study the sand dune that is offered near Chicago. The dunes here reach a height of 150 feet or more and are covered with a thick forest growth. The effects of their resistless movement may be observed in forests in actual process of being submerged and again in the dead stumps of trees left behind as the dune has slowly shifted forward under the influence of the wind. The "dead end" of the Grand Calumet River will be passed. Few places offer such material for the study of geography in the making.

To the botanist, this territory is of equal interest, as the Flora of the east, west and south have here a common meeting ground.

Take luncheon, canteen or bottle of drinking water and tin cup.

Take waterproofs. Rubbers are not needed as the ground is sandy and rain is immediately absorbed.

A wagon will be provided to carry lunch boxes and extra clothing.

The party will walk two miles to the shore of the lake where luncheon will be eaten. The leaders of the party will build fires and prepare coffee for all. No other fires will be permitted.

After luncheon the party will break into several groups for walks of varying length, all meeting at Millers at 5 P.M.

The dunes and the dense vegetation make this country very confusing to one unfamiliar with it. To avoid becoming lost it will be well to keep in sight of the leaders and to follow their directions carefully.

Nothing but a heavy downpour on the morning of the start need deter anyone from going. A rain the night preceding would but make the sand the more compact, and walking the more easy.

If intending to take this outing, please notify by postcard Alexander M. Wilson, 51 La Salle St., Chicago.

Length of walk, 4 miles to 8 miles, as preferred. Expense \$1.

Leaders: Jens Jensen, Miss Amalie Hofer, William Hard, Graham R. Taylor, Alexander M. Wilson.

In the practical conduct of excursions, so much depends upon the leaders and upon the localities visited as to deserve fuller discussion. That the leader of a party and his assistants know the region thoroughly is assumed. In the case of the recreative excursion, the more that can be made of the natural history resources and scenic effects, within reasonable bounds, the better for the interests of the museum. Sounds, as well as scenes, should be carefully considered. The sounds of galloping waves, falling waters, the winds in the trees and the songs

of birds are to be carefully guarded if they are to be appreciated. Sounds, as well as scenic features, are often most advantageously considered in small parties, but with proper foresight many distractions may be warded off, and leaders can often do much to control such circumstances. In case of large excursion parties, some executive ability is needed and this element must be given due weight in the selection of the leader or of some of his assistants.

In observational and collecting excursions, still other qualities are needed in the leader. The guides should have, in addition to a general grasp of the situation, detailed knowledge along certain lines. Several guides may be necessary if the diversity of interests and the extent of the field is large. Each line of special interest may be conducted advantageously as a separate party.

When its aim is clearly defined, the first important step for an excursion has been taken. Considerable caution should be exercised in making a selection; very often too much is attempted. In general, it seems better to attempt less and to do this satisfactorily than to undertake in a single excursion a subject which really warrants several excursions. To maintain simplicity and definiteness of aim, some tact is occasionally necessary. The easiest and shortest route may take the party past some distracting feature which will divert attention from the main aim. Such features should be anticipated and avoided as much as possible, even if the route must be changed. Explanatory excursions, taken out of their proper order, have similar unfavorable effects as the continuity of an explanation is one of its most important features.

In recreative excursions, proximity to water, lakes, streams, sea-shore and other similar natural features, is very desirable and furnishes an opportunity to cultivate an acquaintance with the effects of moving water and other agencies, which may be made to interest large numbers of persons. The plants and animals of such situations are capable of similar interesting treatment. Where water bodies and streams are not available, forests or such topographic features as hills, mountains, cañons, glens, and caves may offer other suitable localities, because of their novelty and scenic features. Historical localities may occasionally be utilized to advantage. From the museum standpoint, it is desirable to emphasize the natural features of the region, to cultivate a first-hand knowledge of them and an appreciation of their cultural value. Such excursions may also be strengthened by supplementary reading.

A second and more frequent form of excursion is the ordinary collecting excursion. This is the favorite of the amateur naturalist and from the ranks of this class of excursionists have perhaps come the largest number of museum curators. The collecting instinct, so useful and essential in a curator, has a chance to develop under supervision on these excursions. The museum may do much for these excursionists through encouragement and guidance. It may also help some of them to carry their work to a stage beyond that of pure collecting and lead them to a practical realization of the local problems and how to investigate them.

Many collectors have developed the habit of collecting as a pastime, and although their excursions take the form of a collecting trip, yet they are primarily recreative rather than educative. Such individuals show how the different kinds of excursionists may overlap and intergrade into one another. These collecting excursions have had, and will continue to have, an important influence upon the growth of museums. These have formed the nuclei about which most of our older museums have grown up, and much of their early growth consisted in the concentration of such collections.

Well-trained collectors are an important element in the development of large and important museum collections. The training of a collector furnishes an experience so valuable in museum work as to make it almost essential to a natural history curator. So important is this factor that I note with surprise that Mrs. Cornelius Stevenson¹ makes no mention of field work in her course of training for curators. This, from my point of view, would be a very serious defect in the training of those who have to deal with natural history collections. In my own experience, I have found that volunteer collectors, largely trained through collecting and observing excursions as amateurs, may give very efficient aid to museum expeditions. As examples of the results of these methods, reference is made to the reports on two museum expeditions: "An Ecological Survey in Northern Michigan²," and "An Ecological Survey of Isle Royale, Lake Superior."³ The museum, in this way is not only serving its public and training collectors, but is also improving the quality and quantity of its own expeditions and collections.

¹ *Proc. Am. Assoc. Mus.*, III, 1909, 115-119.

² *Ann. Rep. Mich. Geol. Survey*, 1905, 1906.

³ *Ann. Rep. Mich. Geol. Survey*, 1908, 1909.

Museums have given little attention to the production of local guide books. By the coöperation of collectors and museums, local surveys may also be made. These can serve as scientific surveys and form a basis for guide books for the study of the local natural history resources. Such books will do much to improve the efficiency of museum excursions as well as to help the individual excursionist. Most of the local studies which will serve as aids and guides for excursionists have been prepared by the physiographers and geographers. It is fortunate that they have blazed the trail so well, as may be seen by an examination of the references accompanying this paper. The best local guide book with which I am acquainted, and a model one in many respects, is that edited by Grabau and Woodman on the natural history of the vicinity of Boston. There may be advantages in having more than one kind of a guide book, so that information about different kinds of excursions can be kept distinct and yet easily accessible.

Some of the same localities can be utilized by the observational and collecting excursions as are used by the recreative ones. In such excursions, the localities visited may well be taken up in some definite or systematic order, so that the observations made will have the advantage of some natural grouping of affinities, even though little more than a mention of it is made at the time. In conducting these excursions there is generally a marked tendency to cover too much ground, so that more concentrated attention upon a smaller area becomes irksome. But in general, the better the locality, the less serious is this difficulty. The earlier excursions may well be allowed to cover more ground, and as the momentum of interest increases, the area may be limited and work made more intensive. As interest increases it will often tend to specialize upon certain subjects or upon certain groups of plants and animals. The younger members may well specialize and train their collecting instincts. For my part, it seems that only a very few need to make private collections. There is a marked tendency for excursions to become almost pure collecting trips, but I believe this tendency should be discouraged and more attention should be given to careful observation, comparison and even description of the conditions or organisms in different localities. In the recreative excursions, the taking of notes by the excursionists is generally undesirable, and in collecting excursions, it will be difficult to secure careful ones. In fact, I have found note-taking to be one of the most difficult habits to develop in excursionists. In general, excursionists do not wish to stop and think over what they have seen

and then carefully record their observations and conclusions. This seems to be very generally true of collectors and yet I feel that this is not only desirable for the best collecting but is essential in the training of a field naturalist, and, I may add, of a curator of natural history. It is perhaps undesirable to emphasize this on the early excursions, and only when sufficient interest and momentum have been developed should this receive more attention.

To secure the best results from the observational excursion, the work must be individual rather than confined to the leader or a few of the more wide awake members, while the others go along as passengers, as it were. To insure individual work, it may be necessary to break up the party into groups small enough so that each may receive some individual attention. Full equipment for collecting or study will do much to favor individual activity.

A third form of excursion I have called explanatory. This is the excursion intended primarily not to collect specimens but to collect explanations, or for the purpose of interpretation. Its relation to other excursions may in some ways be compared with the relation which ordinary synoptic exhibits bear to complex modern groups in our museums; the synthetic element is to predominate over the analytic. In a certain sense many excursions may be considered as explanatory, but the usual form of a collecting excursion certainly does not belong in this group or even those excursions which deal primarily with analytical details. The explanatory excursions which I have in mind deal with general and complex relations, treated from a synthetic standpoint. They are intended to develop general conceptions of out-door relations. This form of excursion has been greatly neglected by a large number of our educational institutions, and particularly by museums.

In the explanatory excursions the selection of the leader, the localities and the order of their study is of the utmost importance. Generally speaking, this is the most difficult kind of excursion to conduct successfully. It is desirable that the localities visited should be taken up in such an order as to show the stages in the development of the subject which is being interpreted. Even many very elementary subjects, when presented in this way have a new interest and charm, and really never grow uninteresting; such are the active agents of nature—the rolling waves, running waters, a brook, the responses of vegetation and animals to their conditions of life. A study of such activities is best taken up in a developmental order and any departure

from this is made at a serious sacrifice, even with experienced persons. The perfect continuity of the processes studied should be one of the most distinctive features of this kind of excursion.

These excursions assume more preparation on the part of the excursionist, and it will be found to be a form of mental food most easily digested by the strong. Some system of careful note taking seems to me an essential in this work; at least for the average person. Such excursions will not appeal to the masses and are not planned for them, except in the simpler phases.

As a part of this series, I should be inclined to include a field study of the development of constructive or synthetic conceptions of natural phenomena. The interrelations of forces and the interrelations of organisms may be considered for their bearing upon general problems and conceptions. The struggle for existence can best be learned in the field. But how many have ever attended an excursion devoted to the study of this problem?

After the excursion has been made and good results have been secured, they need to be cared for as a regular part of curatorial duties so that the interest and momentum which have been developed will not be starved through lack of nourishment. I do not intend to discuss this phase further than to indicate that this aspect of the work must form an essential part of any comprehensive plan.

The excursions represent only a part of the recreative or educational work of a museum, and a part which cannot be replaced by exhibits, lectures or any amount of reading. Excursions, properly planned and executed will add much to the interest taken in the lectures and exhibits and will lead to more intelligent reading. Last, but not least, they will cultivate a genuine love for the out-door world and its beauty and help, in these days of sensational amusements, to make more general a healthful and better recreation for a large number of people. The educational phase of such excursions must be planned upon a truly scientific basis and should be so conducted as to afford some training in the scientific method, because in so far as museums are educational, they must realize these ideals.

From the preceding discussion, we may conclude that an ideal series of excursions for a local museum would consist of a series, each complete in itself, and ranging from those intended primarily to be recreative, to the collecting and observational, and on to those which are primarily explanatory of the local problems or of the general principles of science. In this manner the greatest numbers of the public may be reached,

their interests recognized and the confusion, which results in attempts to combine several kinds of excursions into a single one avoided. In time, some excursionists will naturally graduate from one series to enter others, but this does not argue in favor of combining the different kinds of excursions. It is desirable to allow each kind to retain its identity and serve its natural function.

I do not understand that museum exhibits are intended to be so entirely satisfying that the visitor has no desire to become acquainted with out-door nature, so with lectures and exhibits there should be abundant chances for the museum visitor to become directed to the out of doors. In general, museums are the local institutions which are best organized, interested, and qualified to undertake such work, although there are important exceptions to this rule.

REFERENCES

The following list of references will perhaps prove suggestive for those planning excursions along recreative and educational lines. Completeness is not attempted.

ATWOOD, W. W. and GOLDTHWAITE, J. W.

1908. Physical Geography of the Evanston-Waukegan Region. *Bull. No. 7*, Ill. Geol. Surv., Urbana, Ill.

This exemplifies the educational resources of a limited area from the standpoint of the physiographer.

CARMAN, J. E.

1909. The Mississippi Valley Between Savanna and Davenport. *Bull. 13*, Ill. Geol. Surv.

The latest of several educational handbooks to local physiographic problems prepared under the direction of Prof. R. D. Salisbury for the Ill. and Wis. Surv.

COMSTOCK, J. H.

1897. *Insect Life*. New York.

Contains useful chapters on the insect life of ponds, brooks, forests, roadsides, etc.

COWLES, H. C.

1901. The Plant Societies of Chicago and Vicinity. *Bull. No. 2*, Geographic Society of Chicago.

This shows the possibilities for the study of vegetation near a large city. The best of its kind.

DAVIS, W. M.

1909. Geographical Essays. Chicago.

Contains several papers of important bearing upon field work in physiography and geography.

EMERSON, PHILIP.

1899. Some Suggestions for Excursions with Elementary Classes.

Jour. School Geogr., 3, pp. 287-296.

FENNEMAN, N. M.

1902. On the Lakes of Southeastern Wisconsin. *Bull. No. 8*, Wis. Geol. and Nat. His. Surv., Madison, Wis.

This will indicate many features of interest to be found about smaller lakes.

1909. Physiography of the St. Louis Area. *Bull. 12*, Ill. Geol. Surv.

GIBSON, W. HAMILTON.

1883. Highways and Byways; or Saunterings in New England. New York.

1886. Happy Hunting Grounds: a Tribute to the Woods and Fields. New York.

1891. Strolls by Starlight and Sunshine. New York.

1897. Eye Spy: Afield with Nature Among Flowers and Animate Things. New York.

1898. My Studio Neighbors. New York.

1904. Sharp Eyes: A Ramblers Calendar of Fifty-Two Weeks among Insects, Birds, and Flowers. New York.

All of Gibson's books will arouse interest and direct it toward the beautiful which is to be seen in the animal and plant world. The artist and the naturalist can here find common ground.

1908. Pastoral Days; or Memories of a New England Year. New York.

GOLDTHWAITE, J. W.

1909. Physical Features of the Des Plaines Valley. *Bull. No. 11*, Ill. Geol. Surv.

Another good illustration of the chances for local studies in physical geography.

GRABAU, A. W. and WOODMAN, J. E. (Editors).

1898. Guide to Localities Illustrating the Geology, Marine Zoology and Botany of the Vicinity of Boston.

Each chapter is written by a specialist. The plan of this guide makes it far superior to all others I have seen. A model guide book for excursions.

GULLIVER, F. P.

1903. Out-of-Door Class Work in Geography. *Proc. Nat. Educational Assoc.*, 1903. pp. 857-858.

MARTIN, J. O.

1900. A Brook. *Cornell Nat. Study Quarterly No. 5*, Cornell University.

MEYERS, IRA B.

1908. Field-Work and Nature-Study. *The Elementary School Teacher*, 8, pp. 225-232, 316-326, 381-392.

A valuable discussion of the pedagogical aspect of field work.

ORR, WM.

1901. An Outline of Eight Excursions for the Study of the Physical Geography and Geology of Springfield and Vicinity. City Library Association, Springfield, Mass.

SALISBURY, R. D. and ALDEN, W. C.

1899. The Geography of Chicago and Its Environs. *Bull. No. 1*, Geographic Society of Chicago.

SALISBURY, R. D. and ATWOOD, W. W.

1900. The Geography of the Region About Devil's Lake and the Dalles of the Wisconsin. *Bull. No. 5*, Wis. Geol. and Nat. His. Survey.

Illustrates the possibilities to be found in local studies. One of the best.

SMITH, ROBERT.

1900. Home Lore; Plant Associations and Their Distribution. *Jour. School Geography*, 4, pp. 287-295.

Shows the value of studying the local plant associations. Deserves to be better known.

TRAFTON, GILBERT H.

1905. Laboratory and Field Exercises in Physical Geography. Chicago.

Contains an excellent list of references on field work in physical geography, on pp. 83-85.

VAN DYKE, JOHN C.

1901. The Desert. Further Studies in Natural Appearances. New York.

The arid regions also have their advantages for the field excursionist.

1904. Nature for Its Own Sake. First Studies in Natural Appearances. New York.

J. C. Van Dyke's books will open the eyes of many field workers to a new world of beauty and charm. Every curator of a natural history museum should know this book.

1906. The Opal Sea. Continued Studies in Impressions and Appearances. New York.

A book for the seashore excursionist or a traveler.

The following paper by Dr. Alexander G. Ruthven, head curator of the University of Michigan Museum, was then read by title:

ORGANIZATION OF NEW MUSEUMS OF NATURAL HISTORY

Among the numerous questions that a curator is called upon to answer, if the experience of the writer is an index, one that is not the least frequent is the request for information by the founders of new museums. Such appeals do not come in vain to one who is interested in the work, and I have often attempted to formulate a set of suggestions that would make as definite as possible my responses to such requests. As I should have expected, however, I have found this impossible, principally for two reasons. In the first place my experience has been too limited to permit me to speak with authority on some points, and, secondly, the aims of the proposed institutions are so diverse that no one set of suggestions will apply to all of them.

Even a limited experience, however, brings out strikingly to one who handles museum material that, in the case of natural history museums

which have a small beginning, there are two general precautions that should be taken at the outstart to insure for the institution the most efficient future, whatever its field of activity is to be. The proper care of the incipient museum means, I believe, among other things, that, as soon as the institution is founded, (a) the field of work should be outlined as definitely as possible, and (b) permanent systems of recording data should be installed. These two principles are commonly recognized as being among the cardinal necessities¹ in museum administration, but I believe they should also be emphasized as important ones to be kept carefully in view during the early days of the institution, for the troubles that result from their neglect can more easily be prevented than cured. A consideration of some of these results will make this evident.

Many of our museums, particularly the smaller ones, have been and are being started in a haphazard manner and with the idea that a policy and cataloging system can be worked out after the collections have attained to some size. I need mention only two probable results of such a beginning. In the first place it generally means that the museum receives a lot of useless material from well-meaning but misinformed friends, and this material (which is often entailed) or the confusion which it causes in the catalogs remains a source of perpetual annoyance to the curators. In the second place it means great opportunity for error in the records, for not only will data fail to be recorded when an inadequate system is employed, but there remains the further danger that errors will creep in if the records are ever transcribed to form a part of a permanent system. That there is always danger in transcribing data is so well recognized that any conscientious curator would feel compelled to preserve the original records and numbering for safety, thus increasing the complexity of the system.

I have mentioned what I believe to be two of the most general causes of future difficulties that date from the early days of the museum. That they are real sources of trouble most of you will readily admit, for what trained curator in these times does not have cause to condemn the short-sightedness of some of his predecessors who felt free to accept anything in the way of a specimen, with or without data, and to in-

¹ Compare *The Principles of Museum Administration*, by G. Brown Goode. *Ann. Rep. Mus. Assn.* 1895. Reprinted *Ann. Rep. Smithsonian Inst.*, 1897, pp. 195-240.

augurate new systems of serial numbers from time to time, leaving to his successors a heritage of material that is either valueless or too good to throw away and not good enough to keep.

It is evident, of course, that the best way to avoid these difficulties is to engage a trained curator at the outstart. In other words to have the curator precede the collections and not the collections the curator. If, however, it is impossible to obtain a trained curator from the beginning, I believe that if great care is taken from the first to properly circumscribe the field of activity and to install systems of recording data that will be permanent and elastic, much will be accomplished toward insuring for the museum an efficient maturity.

President Lucas.—"Before making a motion to adjourn, I should like to say that the presiding over the sessions of this meeting has been both a pride and a pleasure. I feel that the Buffalo meeting has been a great success. We were cordially welcomed, we have been most hospitably entertained, we have heard many important papers and much valuable discussion. We have had the pleasure of meeting many of our fellow workers from all parts of the country, and it is with great regret on my own part that I feel the time is near when we must say good-by to one another and to our Buffalo friends. I am sure that each and every one of us can say as a certain eminent citizen said to my friend Dugmore, 'I have had a bully time.'"

Announcement was then made of an excursion for the afternoon through the Niagara Gorge, after which the Association adjourned to meet at Boston in 1911.

APPENDIX

APPENDIX

CONSTITUTION OF THE AMERICAN ASSOCIATION OF MUSEUMS

ARTICLE I

NAME

The name of this Association shall be "The American Association of Museums."

ARTICLE II

OBJECT

The object of this Association shall be to promote the welfare of Museums, to increase and diffuse knowledge of all matters relating to them, and to encourage helpful relations among Museums and those interested in them.

ARTICLE III

MEMBERSHIP

All Museums officially represented at the first meeting of this Association, held at the American Museum of Natural History in New York, on May 15, 1906; all persons taking part in the organization of this Association, or who on the above date, or prior thereto, have by letter signified their wish to become members of the Association, shall become Charter Members on payment before the next annual meeting of the Association of the fees hereinafter provided for.

The Members of the Association shall be Active, Associate, Sustaining and Honorary.

Persons actively engaged in the work of Museums may become Active Members on the payment of three dollars per annum, and may become Active Members for Life upon payment of thirty dollars at any one time.

Persons contributing one dollar per annum may become Associate Members.

Each Museum paying not less than ten dollars a year shall be a Sustaining Member of the Association, and through its chief executive officer or a properly accredited representative, shall be entitled to cast a vote on all matters coming before the Association.

Persons distinguished for eminent services, either to the cause of Museums or to this Association, may become Honorary Members. The number of Honorary Members shall be limited to fifteen. When ten Honorary Members have been elected then thereafter not more than two such members may be elected annually.

Active and Sustaining Members only shall have a right to vote, and Active Members only may hold office.

Any Museum or person proposed in writing for Active, Associate, or Sustaining Membership by a Member of the Association, and approved by the Council, upon the payment of the proper fee shall become a Member of the Association.

Any person contributing five hundred dollars or more at any one time shall become a Patron of the Association.

ARTICLE IV

OFFICERS

The officers of the Association shall be a President, two Vice-Presidents, a Secretary, and a Treasurer, and six other persons designated as Councillors, and these eleven shall constitute the Council. The President and two Councillors chosen by the Association shall retire annually, and for one year shall be ineligible for re-election to the same office.

ARTICLE V

COUNCIL

The general control of the affairs of the Association, except as otherwise herein provided, shall be vested in the Council.

ARTICLE VI

ELECTION OF OFFICERS

Officers shall be elected by ballot at the annual meeting.

The Council shall have power to fill any vacancies which may occur in its membership between annual meetings.

ARTICLE VII

MEETINGS

A general meeting shall be held in each calendar year. Special meetings may be appointed by the Association or called by the Council. The time and place of the annual meeting shall be determined by the Association. In order to diffuse a knowledge of Museums and their work, the Association shall meet in a different city or town each succeeding year, unless otherwise determined by the Association.

At the annual meeting papers may be read, matters relating to Museums discussed, and any business relating to the affairs of the Association shall be transacted.

Special meetings may be called by the Council in emergencies, and only matters stated in the call shall be considered at such special meetings.

ARTICLE VIII

AMENDMENTS

This Constitution may be amended by a two-thirds vote of the members present and voting at any meeting, provided that every proposed amendment shall be first considered by the Council and be reported by the Council with or without recommendation.

REPORT OF THE TREASURER OF THE AMERICAN ASSOCIATION
OF MUSEUMS, PRESENTED AT THE ANNUAL MEETING
BUFFALO, MAY 31—JUNE 2, 1910

Balance on hand at meeting, May 10, 1909..... \$640.01

RECEIPTS

| | |
|---|-----------|
| 1 Active membership for year ending May 15, 1909..... | 2.00 |
| 161 Active memberships for year ending May 15, 1910..... | 322.10 |
| 8 Active memberships for year ending May 15, 1911..... | 15.98 |
| 2 Sustaining memberships for year ending May 15, 1909..... | 20.00 |
| 30 Sustaining memberships for year ending May 15, 1910..... | 300.00 |
| 1 Life membership..... | 30.00 |
| Extra reprints for members..... | 70.08 |
| Sale of publications..... | 24.18 |
| Total receipts..... | \$1424.35 |

EXPENDITURES

1909

| | |
|--|--------|
| May 20, To Philadelphia Museums (printing 500 programs; 200 circulars of notification)..... | \$6.35 |
| June 11, To Grace D. Calvin (reporting proceedings)..... | 75.00 |
| June 14, Philadelphia Museums (telegram)..... | .33 |
| June 28, Southern Printers Supply Co. (halftone electros).... | 7.25 |
| Aug. 7, P. M. Rea, Secretary (clerical assistance to July 1) .. | 25.00 |
| Sept. 23, Postage Stamps for Treasurer | 5.00 |
| Oct. 6, Postage Stamps for Treasurer..... | 4.00 |
| Oct. 9, Philadelphia Museums (500 envelopes and print- ing)..... | 1.10 |

1910

| | |
|--|--------|
| Feb. 15, Williams & Wilkins Co. (Printing of <i>Proceedings</i> and reprints of papers)..... | 472.72 |
| Feb. 15, Williams & Wilkins Co. (expressage) | .75 |
| Mar. 7, To Sassard Bros. (stationery for Secretary)..... | 2.15 |
| Mar. 7, To Office Supply & Fixture Co. (card index, cards, carbon paper, typewriter cover)..... | 20.77 |
| Mar. 7, To Daggett Printing Co. (stationery for Secretary) .. | 11.00 |
| Mar. 7, To Paul M. Rea, Secretary (expressage, freight, sup- plies, clerical assistance)..... | 60.99 |
| Mar. 29, To Paul M. Rea, Secretary (Salary of Assistant, November to March, 5 mos.)..... | 260.00 |

| | |
|----------------------|-----------|
| Carried forward..... | \$952.41 |
| | \$1424.35 |

| | | |
|--|----------|------------------|
| Carried forward..... | \$952.41 | \$1424.35 |
| Apr. 7, To G. E. Stechert & Co. (1 copy Minerva, 1909-10)..... | 4.04 | |
| Apr. 28, To Paul M. Rea (typewriter rent, postage, office supplies, expressage, and clerical and stenographic assistance)..... | 223.13 | |
| Apr. 28, To Daggett Printing Co. (350 announcements)..... | 7.50 | |
| Apr. 28, To Sassard Bros. (stationery)..... | 6.50 | |
| Apr. 28, To Office Supply & Fixture Co. (supplies, typewriter rent, etc.)..... | 6.05 | |
| May 10, To Philadelphia Museums (printing 500 note heads)..... | 1.00 | |
| May 13, Postage Stamps for Treasurer..... | .93 | |
| May 15, To A. A. Clinger (stenographic and clerical work for Treasurer for year ending May 15, 1910)..... | 50.00 | |
| Total Expenditures..... | | <u>\$1251.56</u> |
| Balance in Treasury May 28, 1910..... | | \$172.79 |

W. P. WILSON

Treasurer.

Examined and found correct:

O. C. FARRINGTON,

FRANK C. BAKER,

HENRY L. WARD,

Auditing Committee.

MEMBERS OF THE AMERICAN ASSOCIATION OF MUSEUMS

LIFE MEMBERS

The asterisk (*) denotes a Charter Member.

- Crook, A. R., Curator, Illinois State Museum of Natural History, Springfield, Illinois.
- Graves, F. P., Graves Private Museum, Doe Run, Mo.
- *Hall, Robert C., Owner, Hall Museum of Anthropology, 240 Fourth Ave., Pittsburgh, Pa.
- *Henshaw, Samuel, Curator, Museum of Comparative Zoology, Harvard University, Cambridge, Mass.
- *Holland, W. J., Director, Department of the Museum, Carnegie Institute, Pittsburgh, Pa.
- *Minot, Charles S., Harvard Medical School, Boston, Mass.
- Parrish, James C., Southampton Art Museum, Southampton, Long Island, N. Y.
- Parrish, Samuel L., Southampton Art Museum, Southampton, Long Island, New York.
- *Talmage, James E., Director, Deseret Museum, Salt Lake City, Utah.
- Thayer, John E., Director, Thayer Museum, Lancaster, Mass.

ACTIVE MEMBERS

- *Adams, Charles C., Associate in Animal Ecology, University of Illinois, Urbana, Illinois.
- Adickes, Thomas W., Assistant Curator, North Carolina State Museum, Raleigh, North Carolina.
- Aitkin, Helen J., Assistant, Brooklyn Institute Museum, Brooklyn, N. Y.
- *Akeley, C. E., Taxidermist-in-chief, Field Museum of Natural History, Chicago, Illinois.
- *Allen, J. A., Curator of Mammalogy and Ornithology, American Museum of Natural History, New York City.
- *Ami, Henry M., Geological Survey of Canada, 453 Laurier Ave., East, Ottawa, Canada.
- Atkinson, D. A., Custodian of Reptiles, Carnegie Museum, Pittsburgh, Pa.
- Austin, Thomas L., Curator, Erie Public Museum, Erie, Pa.
- *Baker, Frank C., Curator, The Chicago Academy of Sciences, Lincoln Park, Chicago, Ill.
- *Barber, Edwin Atlee, Director of Museum, Pennsylvania Museum and School of Industrial Art, Philadelphia, Pa.
- *Barbour, Erwin Hinckley, Curator, State Museum, Lincoln, Neb.
- Barrett, S. A., Curator of Anthropology, Public Museum of the City of Milwaukee, Milwaukee, Wis.
- *Beatty, John W., Director, Department of Fine Arts, Carnegie Institute, Pittsburgh, Pa.

- *Bennett, Bessie, Assistant to the Director, The Art Institute of Chicago, Chicago, Ill.
- *Berg, George L., Director, Washington State Art Association, Seattle, Wash.
- Bethel, Ellsworth, President, Colorado Academy of Sciences, Denver, Col.
- Beutenmüller, William, Curator, Department of Entomology, American Museum of Natural History, New York City.
- Bibbins, Arthur Barneveld, Curator of the Museum, Woman's College, Baltimore, Md.
- Blackman, Elmer Ellsworth, Archeologist, Nebraska State Historical Society, Lincoln, Neb.
- *Brigham, William T., Director, Bernice Pauahi Bishop Museum, Honolulu, H. I.
- Brimley, Herbert H., Curator, North Carolina State Museum, Raleigh, N. C.
- *Britton, N. L., Director-in-chief, New York Botanical Garden, Bronx Park, New York City.
- Brock, Clarence L., Director, Houston Museum and Scientific Society, Houston, Texas.
- Brown, Arthur Erwin, Vice-President, Academy of Natural Sciences; Director, Zoological Gardens, Philadelphia, Pa.¹
- Brown, Charles E., Chief, State Historical Museum of Wisconsin, Madison, Wisconsin.
- Brown, Stewardson, Conservator of Botanical Section, Academy of Natural Sciences, Philadelphia, Pa.
- *Bryan, William Alanson, President, Pacific Scientific Institution, Box 38, Honolulu, H. I.
- *Bryan, Mrs. William Alanson, Box 38, Honolulu, H. I.
- Bryant, William L., Custodian of Museum, Buffalo Society of Natural Sciences, Buffalo, N. Y.
- *Bumpus, Hermon C., Business Manager, University of Wisconsin, Madison, Wisconsin.
- *Burchard, Edward L., Director, Social Museum, Chicago School of Civics and Philanthropy, Chicago, Ill.
- Carpenter, Newton H., Secretary, The Art Institute of Chicago, Chicago, Ill.
- Chapin, Willis O., President, Buffalo Fine Arts Academy, Buffalo, N. Y.
- *Clarke, Sir Casper Purdon, Director Emeritus, Metropolitan Museum of Art, New York City.²
- Clarke, John M., Director, New York State Museum, Albany, N. Y.
- Clowes, Herbert, Landscape Modeler, Public Museum of the City of Milwaukee, Milwaukee, Wis.
- Coggeshall, Arthur S., Preparator-in-chief, Department of Paleontology, Carnegie Museum, Pittsburgh, Pa.
- *Collie, George L., Curator, Logan Museum, Beloit College, Beloit, Wis.
- *Comparette, T. Louis, Curator, Numismatic Collection, United States Mint, Philadelphia, Pa.
- Cory, Charles B., Curator of Zoology, Field Museum of Natural History, Chicago, Ill.

¹Died October, 1910.

²Died March 29, 1911.

- Courtney, Mrs. Elizabeth D., Assistant, Carnegie Museum, Pittsburgh, Pa.
Covert, Adolphe Boucard, Taxidermist, 5411 Madison Ave., Chicago, Ill.
Cummings, Carlos E., Secretary, Buffalo Society of Natural Sciences, Buffalo, New York.
- Dahlgren, B. E., Modeler, Department of Botany, Field Museum of Natural History, Chicago, Ill.
- Dana, John Cotton, Secretary, Newark Museum Association, Newark, N. J.
- *Dean, Bashford, Curator of Fossil Fishes, American Museum of Natural History, Curator of Arms and Armor, Metropolitan Museum of Art, New York City.
- *de Forest, Robert W., Trustee and Secretary, Metropolitan Museum of Art, New York City.
- *Dorsey, George A., Curator of Anthropology, Field Museum of Natural History, Chicago, Ill.
- Douglass, Earl, Assistant in Research Section of Paleontology, Carnegie Museum, Pittsburgh, Pa.
- *Dow, George Francis, Secretary and Curator, The Essex Institute, Salem, Mass.
- *Dyche, L. L., Curator of Birds, Mammals, and Fishes, State University, Lawrence, Kan.
- *Eastman, Charles R., Curator of Vertebrate Paleontology, Museum of Comparative Zoology, Harvard University, Cambridge, Mass.
- *Eigenmann, Carl H., Curator of Ichthyology, Carnegie Museum, Pittsburgh, Pennsylvania.
- Emerson, Alfred, Assistant to Director, The Art Institute of Chicago, Chicago, Illinois.
- Failing, Henrietta H., 617 Johnson Street, Portland, Oregon.
- Fairbanks, Arthur, Director, Museum of Fine Arts, Boston, Mass.
- *Farrington, Oliver C., Curator of Geology, Field Museum of Natural History, Chicago, Ill.
- Foulke, J. B., Administrative Assistant, American Museum of Natural History, New York City.
- *Fox, William Henry, Managing Director, John Herron Art Institute, Indianapolis, Ind.
- *French, Wm. M. R., Director, The Art Institute of Chicago, Chicago, Ill.
- Fuller, Robert Gorham, Assistant in American Archeology, Peabody Museum, Cambridge, Mass.
- *Gallup, Anna Billings, Curator, Children's Museum, The Brooklyn Institute of Arts and Sciences, Brooklyn, N. Y.
- Gardiner, Elizabeth M., Assistant to the Director, Worcester Art Museum, Worcester, Mass.
- *Gest, J. H., Director, Cincinnati Museum Association, Cincinnati, Ohio.
- *Gilman, Benj. Ives, Secretary, Museum of Fine Arts, Boston, Mass.
- Gittings, Maud J., Custodian of Library, Carnegie Museum, Pittsburgh, Pa.
- Glenk, Robert, Curator, Louisiana State Museum, New Orleans, La.
- Glenn, L. C., Vanderbilt University Museum, Nashville, Tenn.
- Goll, George P., Curator's Assistant, Philadelphia Museums, Philadelphia, Pa.
- Goodale, George Lincoln, Honorary Curator, Botanical Museum, Harvard University, Cambridge, Mass.

- *Goodyear, Wm. H., Curator of Fine Arts, Brooklyn Institute Museum, Brooklyn, N. Y.
- *Gordon, G. B., Curator, Section of Ethnology, Free Museum of Science and Art, Philadelphia, Pa.
- Graenicher, Sigmund, Curator of Invertebrate Zoology, Public Museum of the City of Milwaukee, Milwaukee, Wis.
- Grant, U. S., Curator, Museum of the College of Liberal Arts, Northwestern University, Evanston, Ill.
- Greenman, Jesse M., Assistant Curator of Botany, Field Museum of Natural History, Chicago, Ill.
- *Greenman, Milton J., Director, The Wistar Institute of Anatomy, Philadelphia, Pennsylvania.
- *Griffin, Delia Isabel, Director, The Fairbanks Museum of Natural Science, St. Johnsbury, Vt.
- *Griffith, A. H., Director, Detroit Museum of Art, Detroit, Mich.
- Grinnell, Joseph, Director, Museum of Vertebrate Zoology, University of California, Berkeley, Cal.
- Gross, A. Q^{JR}, Taxidermist, University of Illinois Museum, Urbana, Ill.
- Gueret, E. N., Assistant Curator, Division of Osteology, Field Museum of Natural History, Chicago, Ill.
- *Hall, Christopher W., Curator, Geological Museum, University of Minnesota, Minneapolis, Minn.
- Hall, F. S., Curator, State Museum, University of Washington, Seattle, Wash.
- Hartman, C. V., Ethnographical Museum, Stockholm, Sweden.
- *Henderson, Junius, Curator of the Museum, University of Colorado, Boulder, Colorado.
- *Hollick, Arthur, Curator, Department of Fossil Botany, New York Botanical Garden, New York City.
- *Hooper, Franklin W., Director, The Brooklyn Institute of Arts and Sciences, Brooklyn, N. Y.
- *Hornaday, William T., Director, New York Zoological Park, New York City.
- *Houston, S. F., Department of Archaeology, University of Pennsylvania, Philadelphia, Pa.
- *Hovey, Edmund Otis, Curator, Department of Geology and Invertebrate Paleontology, American Museum of Natural History, New York City.
- Howe, Marshall A., Curator of the Museum, New York Botanical Garden, New York City.
- Howland, Henry R., Superintendent, Buffalo Society of Natural Sciences, Buffalo, N. Y.
- Hutchinson, Charles L., President, Board of Trustees, The Art Institute of Chicago, Chicago, Ill.
- Hyett, William James, Assistant in charge of Galleries, Department of Fine Arts, Carnegie Institute, Pittsburgh, Pa.
- Ives, Halsey C., Director, City Art Museum, Forest Park, St. Louis, Mo.
- *Jenkins, L. W., Curator of Ethnology, Peabody Museum, Salem, Mass.
- Jennings, Otto E., Assistant Curator of Botany, Carnegie Museum, Pittsburgh, Pennsylvania.
- Jennings, Mrs. Otto E., Assistant in Section of Botany, Carnegie Museum, Pittsburgh, Pa.

- *Johnson, Charles W., Curator, Boston Society of Natural History, Boston, Mass.
- Jones, Lynds, Curator, Zoological Museum, Oberlin College, Oberlin, Ohio.
- Justice, William G., Buffalo Historical Society, Buffalo, N. Y.
- *Kahl, Paul Hugo Isidore, Custodian, Section of Entomology, Carnegie Museum, Pittsburgh, Pa.
- Kalmbach, Edwin R., Assistant, Division of Economic Investigations, Biological Survey, Washington, D. C.
- Katsenberger, George A., Curator, Museum of Carnegie Library, Greenville, Ohio.
- Kent, Henry W., Assistant Secretary, Metropolitan Museum of Art, New York City.
- *Kermode, Francis, Curator, Provincial Museum, Victoria, B. C.
- Koehler, Robert, Director, Minneapolis School of Fine Arts, Minneapolis, Minn.
- *Kunz, George F., Honorary Curator of Gems, American Museum of Natural History, New York City.
- *Lamb, Daniel Smith, Pathologist, Army Medical Museum, Washington, D. C.
- Levy, Florence N., Assistant, Metropolitan Museum of Art, New York City.
- Libbey, William, Director, E. M. Museum, Princeton, N. J.
- *Lindahl, Josua, Late Director of the Museum, Cincinnati Society of Natural History, Cincinnati, Ohio. Address: 7732 Chauncey Ave., Chicago, Ill.
- Link, Gustave A., Taxidermist, Carnegie Museum, Pittsburgh, Pa.
- Lippincott, Elsie, Librarian, Field Museum of Natural History, Chicago, Ill.
- Loomis, Leverett Mills, Director of the Museum, California Academy of Sciences, San Francisco, Cal.
- *Lucas, Frederic A., Curator-in-chief, Museums of The Brooklyn Institute of Arts and Sciences, Brooklyn, N. Y.
- MacAlister, Mary T., Curator, Drexel Institute Museum, Philadelphia, Pa.
- *MacCurdy, George Grant, Curator, Section of Anthropology, Yale University Museum, New Haven, Conn.
- *McGee, W J, Secretary, Inland Waterways Commission, Department of Agriculture, Washington, D. C.
- *McGuire, F. B., Director, Corcoran Gallery of Art, Washington, D. C.
- McIlvaine, Caroline M., Librarian, Chicago Historical Society, Chicago, Ill.
- McIlvaine, Mabel, Assistant, Metropolitan Museum of Art, New York City.
- McIntosh, William, Curator, Natural History Museum, St. John, N. B.
- Maddox, Robert D., Curator, Medical Museum, University of Cincinnati, Cincinnati, Ohio.
- Madison, H. L., Curator, Park Museum, Providence, R. I.
- Martin, Daniel S., Honorary Curator, Department of Geology, Charleston Museum, Charleston, S. C.
- Meek, Seth E., Curator, Department of Ichthyology, Field Museum of Natural History, Chicago, Ill.
- Mengel, Levi W., Director, Reading Public Museum, Reading, Pa.
- Meyers, Ira B., Curator, School of Education Museum, University of Chicago, Chicago, Ill.
- Miller, A. W., Curator, Oregon Academy of Sciences, Portland, Ore.
- Miller, Paul C., Walker Museum, University of Chicago, Chicago, Ill.

- *Mills, William C., Curator and Librarian, Ohio State Archaeological and Historical Society, Ohio State University, Columbus, Ohio.
- Millsbaugh, Charles F., Curator of Botany, Field Museum of Natural History, Chicago, Ill.
- Millsbaugh, Mrs. Charles F., Chicago, Ill.
- *Miner, Roy W., Assistant Curator of Invertebrate Zoology, American Museum of Natural History, New York City.
- *Montgomery, Henry, Curator of the Museum, University of Toronto, Toronto, Ontario.
- Montgomery, Thomas L., Director, Pennsylvania State Museum, Harrisburg, Pennsylvania.
- Moorehead, Warren K., Curator, Department of Archaeology, Phillips Academy, Andover, Mass.
- Morris, E. L., Curator of Natural Science, Brooklyn Institute Museum, Brooklyn, N. Y.
- *Morse, Edward S., Director, Peabody Museum, Salem, Mass.
- *Morse, Silas R., Curator, New Jersey State Museum, Trenton, N. J.
- *Nachtrieb, Henry F., Curator, Zoological Museum, University of Minnesota, Minneapolis, Minn.
- Nichols, Henry W., Assistant Curator of Geology, Field Museum of Natural History, Chicago, Ill.
- *Nutting, Charles C., Curator, Museum of Natural History, State University of Iowa, Iowa City, Iowa.
- Ortmann, Arnold E., Curator of Invertebrate Zoology, Carnegie Museum, Pittsburgh, Pa.
- Osgood, Wilfred H., Assistant Curator of Mammalogy and Ornithology, Field Museum of Natural History, Chicago, Ill.
- Paarmann, J. H., Curator, Davenport Academy of Sciences, Davenport, Iowa.
- Parkinson, Edward K., Director, Albany Institute, Albany, N. Y.
- Perine, Clara N., Assistant to Director, The Wistar Institute of Anatomy, Philadelphia, Pa.
- *Peterson, Harry C., Curator, Leland Stanford Junior Museum, Palo Alto, Cal.
- *Peterson, Olaf August, Field Collector and Preparator of Mammals and Birds, Carnegie Museum, Pittsburgh, Pa.
- Pickard, John, University of Missouri, Columbus, Mo.
- Pilsbry, Henry A., Curator, Academy of Natural Sciences, Philadelphia, Pa.
- Pitkin, Albert Hastings, Curator of Ceramics, Morgan Memorial, Wadsworth Athenaeum, Box 867, Hartford, Conn.
- Pollard, Charles Louis, Curator-in-chief, Museum of Staten Island Association of Arts and Sciences, New Brighton, N. Y.
- Prentice, Sydney, Artist and Illustrator, Carnegie Museum, Pittsburgh, Pa.
- Putnam, Edward K., Acting Director, Davenport Academy of Sciences, Davenport, Iowa.
- *Putnam, Frederick W., Honorary Curator, Peabody Museum, Harvard University; Professor Emeritus of Anthropology, University of California. Address: Cambridge, Mass.
- Ranck, Samuel H., Librarian, Grand Rapids Public Library, Grand Rapids, Michigan.

- *Rathbun, Richard, Assistant Secretary, Smithsonian Institution, in charge United States National Museum, Washington, D. C.
- *Rathmann, C. G., Director, Educational Museum, St. Louis, Mo.
- *Raymond, Percy E., Invertebrate Paleontologist, Geological Survey of Canada, Ottawa.
- *Rea, Paul M., Director, The Charleston Museum, Charleston, S. C.
- Reinecke, Ottomar, Buffalo Society of Natural Sciences, Buffalo, N. Y.
- Rice, William North, Wesleyan University Museum, Middletown, Conn.
- Riggs, Elmer Samuel, Assistant Curator of Paleontology, Field Museum of Natural History, Chicago, Ill.
- Robinson, Edward, Director, Metropolitan Museum of Art, New York City.
- Rothermel, John G., Superintendent, Wagner Free Institute of Science, Philadelphia, Pa.
- *Rothrock, Boyd P., Curator, Division of Zoology, Pennsylvania State Museum, Harrisburg, Pa.
- Rothrock, Mrs. Boyd P., Accessionist and Foliage Worker, Pennsylvania State Museum, Harrisburg, Pa.
- Rowe, Louis Earle, Docent, Museum of Fine Arts, Boston, Mass.
- Ruthven, A. G., Head Curator of the Museum, University of Michigan, Ann Arbor, Mich.
- Sage, Cornelia Bently, Director, Albright Art Gallery, Buffalo, N. Y.
- Santens, Jos. A., Preparator, Taxidermic Laboratory, Carnegie Museum, Pittsburgh, Pa.
- *Santens, Remi H., Preparator, Taxidermic Laboratory, Carnegie Museum, Pittsburgh, Pa.
- Sargent, Herbert E., Director, Kent Scientific Museum, Grand Rapids, Mich.
- Schoff, Wilfred H., Secretary and Assistant Treasurer, The Philadelphia Museums, Philadelphia, Pa.
- *Schuchert, Charles, Curator of Geology, Peabody Museum, Yale University, New Haven, Conn.
- Severance, Frank H., Secretary, Buffalo Historical Society, Buffalo, N. Y.
- Shafer, John A., Custodian of the Museums, New York Botanical Garden, Bronx Park, New York City.
- *Sherwood, George H., Assistant Secretary, American Museum of Natural History, New York City.
- Shrosbree, George, Chief Taxidermist, Public Museum of the City of Milwaukee, Milwaukee, Wis.
- Simms, S. C., Assistant Curator of Anthropology, Field Museum of Natural History, Chicago, Ill.
- *Skiff, Frederick J. V., Director, Field Museum of Natural History, Chicago, Ill.
- Skinner, Henry, Curator, American Entomological Society, Academy of Natural Sciences, Philadelphia, Pa.
- Small, John K., Head Curator of the Museums and Herbarium, New York Botanical Garden, Bronx Park, New York City.
- Smith, Frank, Curator of Museum, University of Illinois, Urbana, Ill.
- Smith, Lee H., Vice-President, Buffalo Society of Natural Sciences, Buffalo, N. Y.
- *Smith, T. Guilford, President, Buffalo Society of Natural Sciences, Buffalo, N. Y.
- Stevens, Mrs. George W., Assistant to Director, Toledo Museum of Art, Toledo, O.

- Stevenson, Mrs. Cornelius, Assistant Curator and Lecturer, Pennsylvania Museum and School of Industrial Art, Philadelphia, Pa.
- Stewart, Douglas, Assistant to Director, Carnegie Museum, Pittsburgh, Pa.
- *Stone, Witmer, Assistant Curator, Academy of Natural Sciences, Philadelphia, Pennsylvania.
- Stotsenberg, J. MacPherson, Curator, The Wistar Institute of Anatomy, Philadelphia, Pa.
- Strecker, John K., Jr., Curator, Baylor University Museum, Waco, Texas.
- Swarth, Harry S., Curator of Ornithology, Museum of Vertebrate Zoology, University of California, Berkeley, Cal.
- Sweeney, Arthur, Secretary, St. Paul Institute, St. Paul, Minn.
- Toothaker, Charles R., Curator, The Philadelphia Museums, Philadelphia, Pa.
- *Tower, Ralph W., Curator of Physiology and Books and Publications, American Museum of Natural History, New York City.
- *Townsend, Charles H., Director, New York Aquarium, Battery Park, New York City.
- *Townsend, Louis H., Osteologist, Carnegie Museum, Pittsburgh, Pa.
- Trask, John E. D., Secretary and Manager, Pennsylvania Academy of Fine Arts, Philadelphia, Pa.
- Uhle, Max, Director, Museo de Historia Nacional, Lima, Peru.
- Van Horne, Mary, Librarian, The Art Institute of Chicago, Chicago, Ill.
- Wagenseller, B. Meade, Assistant, Philadelphia Museums, Philadelphia, Pa.
- *Ward, Henry L., Director, Public Museum of the City of Milwaukee, Milwaukee, Wisconsin.
- Weller, Stuart, Curator, Walker Museum, University of Chicago, Chicago, Ill.
- Whitmore, Francis E., Curator, Higgins Museum, Cortland, N. Y.
- *Wilcomb, C. P., Curator, Oakland Public Museum, Oakland, Cal.
- *Willoughby, Charles C., Assistant Curator, Peabody Museum, Harvard University, Cambridge, Mass.
- Wilson, Charles R., Vice-President, Buffalo Historical Society, Buffalo, N. Y.
- Wilson, P. C., President, Board of Trustees, Chattanooga Museum, Chattanooga, Tennessee.
- *Wilson, W. P., Director, The Philadelphia Museums, Philadelphia, Pa.
- *Wissler, Clark, Curator of Anthropology, American Museum of Natural History, New York City.
- Woodruff, Frank M., Ornithologist, The Chicago Academy of Sciences, Chicago, Ill.
- Wright, Mrs. A. A., Custodian, Olney Art Collection, Oberlin College, Oberlin, Ohio.
- Zeller, August, Superintendent of Installation of Agriculture and Sculpture, Department of Fine Arts, Carnegie Institute, Pittsburgh, Pa.
- *Zierden, Alicia M., Curator, Division of Education, Pennsylvania State Museum, Harrisburg, Pa.

SUSTAINING MEMBERS

Academy of Natural Sciences of Philadelphia, Philadelphia, Pa.

*American Museum of Natural History, 77th St. and Central Park West, New York City.

*Art Association of Indianapolis, (John Herron Art Institute), Indianapolis, Ind.

*The Art Institute of Chicago, Chicago, Ill.

Boston Society of Natural History, Boston, Mass.

*Brooklyn Institute Museum, Eastern Parkway, Brooklyn, N. Y.

*Carnegie Museum, Department of the Carnegie Institute, Pittsburgh, Pa.

*The Charleston Museum, Charleston, S. C.

*The Chicago Academy of Sciences, Lincoln Park, Chicago, Ill.

Cincinnati Museum Association, Cincinnati, Ohio.

City Art Museum, Forest Park, St. Louis, Mo.

Colorado Museum of Natural History, Denver, Col.

*The Corcoran Gallery of Art, Washington, D. C.

*Deseret Museum, Salt Lake City, Utah.

The Essex Institute, Salem, Mass.

*The Fairbanks Museum of Natural Science, St. Johnsbury, Vt.

*Field Museum of Natural History, Chicago, Ill.

*Free Museum of Science and Art, Department of Archaeology, University of Pennsylvania, Philadelphia, Pa.

*Metropolitan Museum of Art, New York City.

Museo Nacional de Bogota, Bogota, Colombia.

Museum of the College of Liberal Arts, Northwestern University, Evanston, Ill.

*Museum of Fine Arts, Boston, Mass.

*New York Botanical Garden, Bronx Park, New York City.

*New York State Museum, Albany, N. Y.

Peabody Museum, Salem, Mass.

*Pennsylvania Museum and School of Industrial Art, Memorial Hall, Fairmount Park, Philadelphia, Pa.

Pennsylvania State Museum, Harrisburg, Pa.

The Philadelphia Museums, 34th St., below Spruce, Philadelphia, Pa.

*Public Museum of the City of Milwaukee, Milwaukee, Wis.

Syracuse Museum of Fine Arts, Syracuse, N. Y.

University of Nebraska, Lincoln, Neb.

Wadsworth Athenæum, Hartford, Conn.

Walker Museum, University of Chicago, Chicago, Ill.

*Washington State Art Association, Seattle, Wash.

*Williams College Library, Williamstown, Mass.

NECROLOGY

GEORGE FISK COMFORT, L.H.D., L.L.D.

Member of the American Association of Museums since 1907. Director and founder of the Syracuse Museum of Fine Arts. One of the founders and a member of the original board of trustees of the Metropolitan Museum of Art in New York City. Organizer of the American Philological Association in 1869, and of the Central New York Society of Artists in 1901. Organizer of the College of Fine Arts of Syracuse University, in 1873, and dean of its faculty for twenty years. Member of many American and foreign learned societies. A leader in art education in America.

Born in Berkshire, Tioga County, New York, September 20, 1833. Died in Mont Clair, New Jersey, May 5, 1910.

INDEX

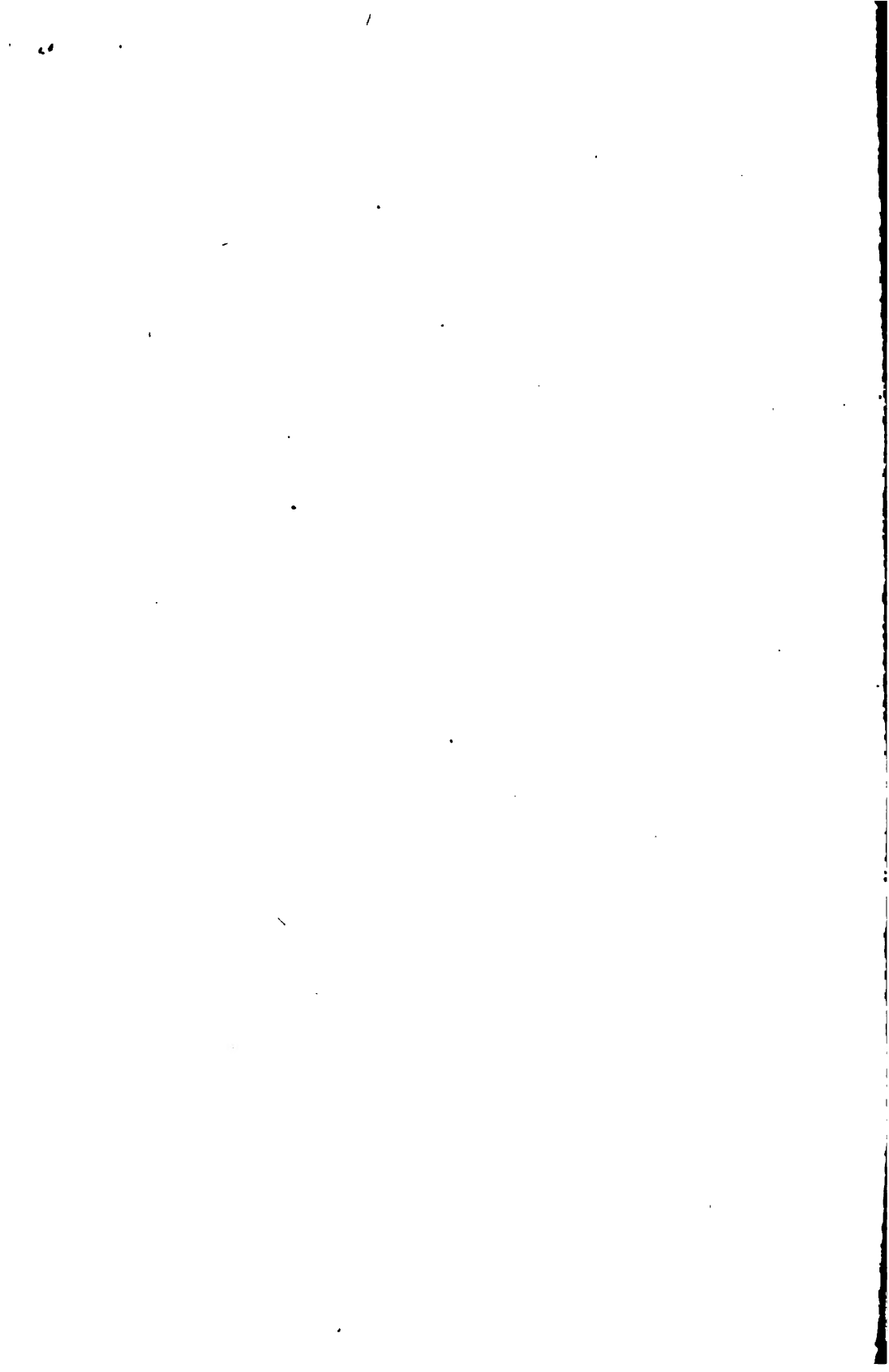
- Adams, C. C., Paper on "The Relation of Field Excursions to the Activities of Local Museums," 112-124
- Amendments to Constitution, 8, 9, 58
- American Archeological Society, 33
- American Geographical Society, 26, 30
- American Museum of Natural History, 25-26, 30, 31, 37
- American Society of Mechanical Engineers, 26, 30
- Antiquarians of the Art Institute, 94-95
- Archeological Objects, *see* Historical and Archeological Objects
- Art, Free, Committee on, 7
- Art Institute of Chicago, 92-96
- Attendance, Roll of, 1-3
- Auditing Committee, 58, 87
- Baker, F. C., Paper on "A Method of Exhibiting Large Descriptive Labels on the Outside of Museum Cases," 21-23; Paper on "School Loan Collections as Prepared by the Chicago Academy of Sciences," 36-40; Appointed to Auditing Committee, 58; Remarks by, 31, 33, 36, 40, 41, 99-100
- Barrett, S. A., Remarks by, 33, 35
- Big Bottom Park, 35
- Bird Population of Illinois, 42
- Boston, Invitation to meet at, 97
- Botanical Installation, Paper by C. F. Millspaugh, 52-56
- Brimley, H. H., Remarks by, 111
- Brooklyn Institute of Arts and Sciences, 26, 30
- Buffalo Fine Arts Academy, 96, 112
- Buffalo Historical Society, 31, 65-66, 72, 89-90, 112
- Buffalo Society of Natural Sciences, 31, 32, 37, 40-41, 97, 112
- Carnegie Museum, 37
- Carpenter, N. H., Paper on "The Value of Members to Museums," 91-97
- Charleston Museum, 41
- Chicago Academy of Sciences, 21-23; School Loan Collections of, 36-40
- Children's Museum, 26, 30
- Cincinnati Museum Association, 97
- City History Club, 26, 30
- Clarke, J. M., Remarks by, 41, 72-73, 87-89, 90
- College of the City of New York, 26-27, 30
- Comfort, George F., Death of, 7, 112, 141
- Committee, Auditing, 58, 87; on Amendments, 58; on Cooperation with Historical Societies, 73; on Free Art, 7; on Historical and Archeological Objects, 36, 74, 98; on Postal Rates, 7
- Constitution, 128-129; Amendments to, 8, 9, 58, 98
- Country Club, Resolution of Thanks to, 112
- Crook, A. R., Paper on "The Training of Museum Curators," 59-63; Remarks by, 24, 42, 64, 104
- Cummings, C. E., Demonstration by, 91, 97
- Curators, Training of, 59-63
- Detroit Museum of Art, 97
- Directory of Museums, 3-5, 59

- Election of Officers, 59
 Exhibition Cases without Shelves,
 Paper by E. N. Gueret, 16-18
 Exhibition Jars, 19; Semi-cylindrical,
 20
 Fairbanks Museum of Natural Sci-
 ence, 73-74
 Fairmount Park Art Association of
 Philadelphia, 97
 Farrington, O. C., Appointed to Audit-
 ing Committee, 58; Remarks by, 24
 Field Excursions, Relation of, to
 Activities of Local Museums, Paper
 by C. C. Adams, 112-124
 Field Museum of Natural History,
 16-18, 105-111; Botanical Instal-
 lation in, 52-56
 Formula for Water Composition, 12
 Fort Ancient, 34
 Fossils and Skeletons, Exhibition of,
 in Popular Museums, Paper by
 H. L. Ward, 100-103
 Fraunces Tavern, 27, 30
 Freeman, Mrs. J. K., Remarks by, 74
 Friends of American Art, 94-95
 Gallery Leaflet for Art Museums,
 Paper by L. E. Rowe, 75-77
 Gardiner, Elizabeth M., Paper on
 "The Library of the Smaller Mu-
 seum," 78-84; Remarks by, 77
 Gelatine Composition in Museum
 Groups, Paper by George Shros-
 bree, 10-12
 Geological Time Chart, 51
 Gilman, B. I., Paper on "Museum
 Registry of Local Art," 84-87
 Griffin, Delia I., Remarks by, 73-74
 Gueret, E. N., Paper on "Exhibition
 Cases without Shelves," 16-18;
 Remarks by, 18, 20
 Hill, Henry W., Remarks by, 64
 Historical and Archeological Objects,
 Preservation of, 32, 33, 34, 35, 74,
 87-90, 98
 Historical Museums, Paper by F. H.
 Severance, 64-68
 Historical Society of New York City,
 72
 Historical Society of Niagara Falls,
 89-90
 Hollick, Arthur, Paper on "The Paleo-
 botanical Collections of the New
 York Botanical Garden," 43-52;
 Remarks by, 103
 Howland, H. R., Elected Councilor,
 59; Resolution of Thanks to, 112;
 Remarks by, 24, 33-34, 40-41
 Hudson-Fulton Celebration, Museum
 Coöperation in, 24-30
 Invitation, To meet in Boston, 97;
 To meet in St. Louis, 97, 98
 John Herron Art Institute of Indian-
 apolis, 96
 Johns Hopkins University, 43
 Justice, W. G., Resolution of Thanks
 to, 112
 Kunz, G. F., Paper on "Museum Co-
 operation in the Hudson-Fulton
 Celebration of 1909," 24-30
 Label Holder, Home-made, 21
 Labeling Large Collections of Mam-
 mals and Birds, Paper by W. H.
 Osgood, 105-111
 Labels, Method of Exhibiting Large
 Descriptive, Paper by F. C. Baker,
 21-23
 Labels and Labeling, 21-23, 24, 32,
 44-47, 105
 Laboratory of Natural History of
 Illinois, 42
 Lantern Slides, Demonstration of,
 91, 97
 Library of the Smaller Museum, Pa-
 per by Elizabeth M. Gardiner, 78-
 84
 Livingston County Historical Society,
 66-67

- Long Island Historical Society, 27, 30, 72
- Lucas, F. A., Elected Councilor, 59; Remarks by, 8, 12, 16, 18, 20, 31, 33, 57, 58, 64, 87, 99, 104, 111, 126
- Members, Value of, to Museums, Paper by N. H. Carpenter, 91-97
- Members, In Attendance at Buffalo Meeting, 1-3; Conditions of becoming, 128-129; New, 6-7; Charter, 132; Active, 132-139; Life, 132; Sustaining, 140; Dues of, 8, 9, 58; In Arrears, 58; Death of, 7, 112, 141
- Metropolitan Museum of Art, 25, 29-30, 96
- Miamisburg, Ohio, Mound at, 35
- Mills, W. C., Remarks by, 34-35
- Millspaugh, C. F., Paper on "Botanical Installation," 52-56; Remarks by, 13, 57, 70-71, 99
- Milwaukee Public Museum, 10-16, 37
- Morris, E. L., Remarks by, 99
- Morse, E. S., Elected Vice-President, 59; Remarks by 8-9, 57, 64, 71
- Museum Catalogs and Records, Paper by C. R. Toothaker, 98
- Museum Cooperation in the Hudson-Fulton Celebration of 1909, Paper by G. F. Kunz, 24-30
- Museum Groups, Gelatine Composition in, Paper by George Shrobbrec, 10-12
- Museum of Fine Arts, Boston, 75-77, 84-87, 96
- Museum Registry of Local Art, Paper by B. I. Gilman, 84-87
- Museums of Natural History, Organization of, 124-126
- Museums, Directory of, 3-5
- National Arts Club, 27, 30
- Necrology, 141
- New York Aquarium, 27, 30
- New York Botanical Garden, 27, 30; Paleobotanical Collections of, 43-52
- New York Genealogical and Biographical Society, 28, 30
- New York Historical Society, 28, 30
- New York Public Library, Lenox Branch, 28, 30
- New York State Historical Society, 73
- New York Zoological Park, 28, 30
- Niagara Frontier Landmarks Association, 90
- Officers, Election of, 59
- Ohio State Archeological and Historical Society, 34
- Organization of New Museums of Natural History, Paper by A. G. Ruthven, 124-126
- Ortmann, A. E., Remarks by, 20, 32
- Osgood, W. H., Paper on "Labeling Large Collections of Mammals and Birds," 105-111; Remarks by, 104, 111
- Paleobotanical Collections of the New York Botanical Garden, Paper by Arthur Hollick, 43-52
- Pennsylvania Museum and School of Industrial Art, 96
- Philadelphia Museums, 37
- Pollard, C. L., Demonstration by, 20, 21; Remarks by, 20, 21, 71-72, 111
- Postal Rates, Committee on, 7
- Proceedings*, Distribution of, 8, 58
- Rea, P. M., Report as Secretary, 3-7; Re-elected Secretary, 59; Remarks by, 8, 9, 35, 36, 41, 68-70
- Reformed Protestant Dutch Church, 28, 30
- Report of Auditing Committee, 87; of Secretary, 3-7; of Treasurer, 7, 58, 130-131
- Resolutions, 98, 112

- Robinson, Edward, Elected Second Vice-President, 59
- Rothrock, Boyd P., Remarks by, 23
- Rowe, L. E., Paper on "A Gallery Leaflet for Art Museums," 75-77; Remarks by, 72, 77
- Ruthven, A. G., Paper on "Organization of New Museums of Natural History," 124-126
- Sage, Cornelia B., Resolution of Thanks to, 112
- St. Louis, Invitation to meet at, 97, 98
- St. Louis Board of Education, 37
- Sargent, H. E., Remarks by, 19, 24, 34, 42-43, 73
- School Loan Collections as Prepared by the Chicago Academy of Sciences, Paper by F. C. Baker, 36-40
- Secretary, Report of, 3-7
- Serpent Mound Park, 34
- Severance, F. H., Paper, on "Historical Museums," 64-68; Resolution of Thanks to, 112; Remarks by, 89-90
- Shrobbree, George, Paper on "Gelatine Composition in Museum Groups," 10-12
- Shrobbree Specimen Hanger, Paper by H. L. Ward, 13-16
- Skiff, F. J. V., Elected President, 59
- Smith, T. Guilford, Remarks by, 31-32
- Specimen Hanger, Shrobbree, 13-16
- Staten Island Association of Arts and Sciences, 28-29, 30
- Stereoscopic Views, Value of, 76
- Stewart, Douglas, Remarks by, 40
- Talmage, J. E., Appointed as Committee on Amendments, 58
- Toothaker, C. R., Demonstration by, 19; Paper on "Museum Catalogs and Records," 98; Remarks by, 19, 20
- Training of Museum Curators, Paper by A. R. Crook, 59-63
- Treasurer, Report of, 7, 58, 130-131
- U. S. Biological Survey, 105-106
- U. S. National Museum, 43
- Van Cortlandt House, 29, 30
- Ward, H. L., Paper on "Exhibition of Fossils and Skeletons in Popular Museums," 100-103; Paper on "The Shrobbree Specimen Hanger," 13-16; Appointed to Auditing Committee, 58; Remarks by, 13, 19, 21, 40, 41-42
- Washington's Headquarters, 29, 30
- Wilson, W. P., Report as Treasurer, 7, 58, 130-131; Re-elected Treasurer, 59; Remarks by, 30, 31, 35, 56-57
- Worcester Art Museum, 78-84
- Zierden, Alicia M., Remarks by, 33, 104





Prince Room

